LITHIC ANALYSIS AT A LATE PREHISTORIC COASTAL SITE IN THE SAMOAN ARCHIPELAGO

A Thesis

by

MEGAN TUCKER HAWKINS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

December 2009

Major Subject: Anthropology

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Approved by:

Chair of Committee,	Suzanne L. Eckert
Committee Members,	Ted Goebel
	Frederic B. Pearl
Head of the Department,	Donny Hamilton

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ABSTRACT

Lithic Analysis at a Late Prehistoric

Coastal Site in the Samoan Archipelago. (December 2009)

Megan Tucker Hawkins, B.A., University of Massachusetts, Amherst

Chair of Advisory Committee: Dr. Suzanne L. Eckert

This thesis presents a lithic attribute and geochemical analysis of the lithic material recovered from coastal site of Fatumafuti, on Tutuila Island, in the Samoan archipelago during 1050-520 BP. The goal of this thesis is to clarify the nature of stone tool production and to add to our current understanding of the cultural transformations from Lapita to a Polynesian identity. To complete this goal four research questions are addressed. What is the stage of reduction (*chaîne opératoire*) at Fatumafuti? Does the assemblage vary over space and time? Where did the source material come from? And, what was the organization of lithic craft production? Specifically, is there evidence for specialization?

The lithics at Fatumafuti contain multiple segments in the technical sequence of tool manufacture (*chaîne opératoire*). The two major segments are middle stage and late stage reduction, and two minor segments are early stage reduction and tool rejuvenation. Expedient tools found on site indicate that prehistoric groups did not rely on a completely curated technology. Tool manufacture was geared toward producing a variety of tools, as opposed to a specific product. Production was most intense towards the coastal portion of the site during the earlier cultural component and then shifted towards the talus base during the later cultural component. Using non-destructive Energy Dispersive X-Ray Fluorescence (EDXRF), elemental concentrations were analyzed and compared to those of Tataga-matau, Lau'agae, Asiapa and Alega. One, possibly two, sources were utilized at this site; however, they are not chemically similar to Tataga-matau, Lau'agae, Asiapa and Alega. I conclude that people of Fatumafuti practiced independent household production at the end of the Aceramic and beginning of the Recent period. Either the intensification of lithic craft production that is seen during the height of complex chiefdoms is not seen at Fatumafuti, or these social transformations had not yet taken hold. With more cases that date to this time, we may find that Samoan chiefdoms had not attained full complexity at this point.

DEDICATION

To Marguerite Merrigan,

slán agus beannacht leat. Gráim thú.

ACKNOWLEDGMENTS

I would like to thank David Herdrich, the territorial archaeologist and SHPO director. Without his help, none of this would have been possible. Thank you to the people of Tutuila; their kindness, generosity and friendship is truly appreciated, and is responsible for so many wonderful memories. To my committee, Dr. Eckert, Dr. Goebel and Dr. Pearl, without whom my graduate career would not have been possible, thank you for your guidance, patience and support. Thanks to Dr. Mike Waters for all your help along the way, and thanks to Dr. James and the good people at the Elemental Analysis Laboratory (EAL).

I would like express my gratitude and appreciation to my brother Christopher; you have helped me attain so many of my goals. Without your continuing assistance and reinforcement, I would not be where I am today. Thank you to the rest of my family. You believe in me even when I don’t. I owe my cohort and colleagues at Texas A&M a tremendous amount of gratitude. In particular I would to thank Philip Johnson, Charlotte Pevny, Josh Keene, Tom Jennings, Danny Welch, Chris Crews, Chris Bartek, David Foxe, Drew Roberts, Heather Smith and anyone I may be forgetting. I am forever indebted to you all.

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CHAPTER I

INTRODUCTION

> I think that throughout the world we would find that the relations between economics and politics are of the same type. The chief, everywhere, acts as a tribal banker, collecting food, storing it, and protecting it, and then using it for the benefit of the whole community.
>
> Bronislaw Malinowski (1937:232-33)

Over the last fifty years, archaeologists working in the Samoan Archipelago, located approximately 14 degrees south latitude in the central Pacific Ocean (Figure 1.1), have contributed much to our understanding of Polynesian prehistory. The studies that have resulted in our current understanding of Samoan colonization and early culture can be viewed as having occurred in a series of phases. These phases underpin the research reported here, which is itself an extension of the Samoan archeological literature.

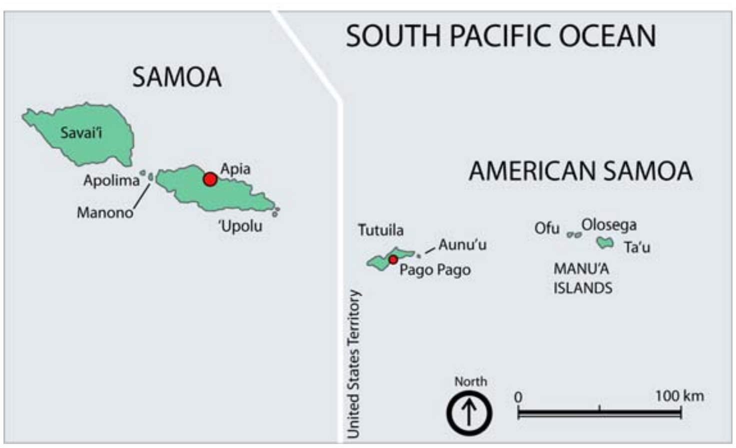

Figure 1.1 Map of the Samoan archipelago.

This thesis follows the style and format of *American Antiquity*.

Much of the Samoan Archipelago is an excellent place to conduct lithic research. Depending on the geologic characteristics of an island, the quality of basalt used to make stone tools can vary dramatically from one island to the next. Fine-grained basalt, a durable material that can be predictably worked into a sharp edge, is relatively rare in west Polynesia. Due to their geological history, the Samoan islands, Tutuila in particular, contain basalt of excellent quality (Weisler and Kirch 1996). Tools made of basalt, such as adzes, are regarded as the most typologically useful artifacts recovered from excavations in Polynesia (Davidson 1977). Due to the quality of basalt on Tutuila, and the fact that these sources vary in their chemical signatures, tools procured from Tutuila have been shown to appear on many widely separated islands in the central Pacific (Barnes and Hunt 2005).

This thesis is organized into five chapters. The remainder of this chapter discusses my research questions, the results provided by the Fatumafuti site report, and the geoarchaeology of the excavation units used in this study. Chapter II summarizes the cultural history and archaeological background of Samoa. Chapter III lays out the theoretical and methodological foundation for the study of lithic technology, including the reduction sequence and waste flake analysis. Additionally, various indicators of craft specialization are identified, and social stratification in Samoa is discussed to define how strategic resources and craft production are potentially organized and controlled in a stratified society. Chapter IV provides the results of the attribute and geochemical analyses, and Chapter V presents my interpretations and conclusions of the results and why these are significant to past and future work in Samoa.

RESEARCH QUESTION

The goal of this thesis is to elaborate on cultural activities that occurred at the coastal site of Fatumafuti, on Tutuila Island, approximately 500-1000 years ago. An understanding of these activities at Fatumafuti will add to our understanding of the cultural transformations that occurred on the island from the time of colonization through to the emergence of social complexity that resulted in the stratified Samoan chiefdom society that existed at the point of European contact (Figure 1.2).

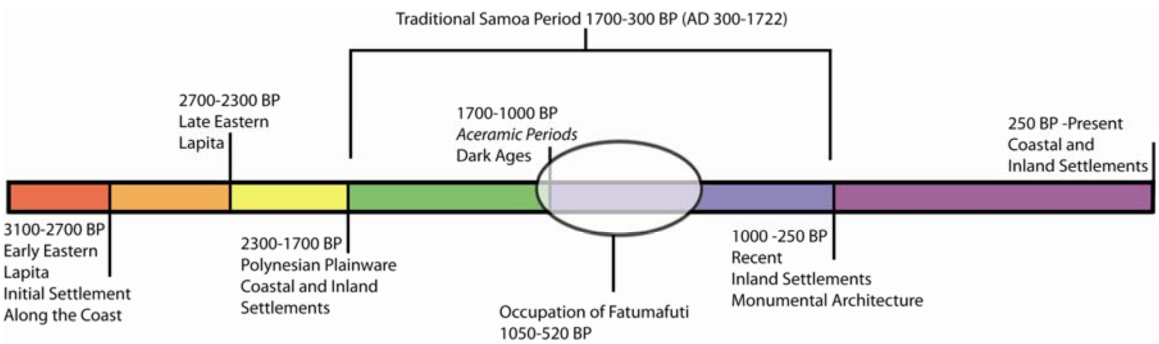

Figure 1.2 Samoan cultural sequence.

Lithic attribute and geochemical analyses of basalt waste flakes are conducted to answer four questions:

What the stage of reduction (chaîne opératoire) is represented at the site?

1) Does the assemblage vary over space and time?
2) Where did the source material come from?
3) What was the organization of lithic craft production? Specifically, is there evidence for lithic craft specialization?

Chaîne opératoire refers to a theoretical concept in which a string of actions are carried out on an object, resulting in a visible outcome that further alters that objective piece (Sellet 1993). The chaîne begins with the acquisition of the raw material and ends with its discard as an exhausted tool. Reduction stages are the physical manifestation of the chaîne opératoire. The reduction sequence is divided into stages for the purpose of identifying the full range of lithic manufacturing behaviors, from material acquisition to tool discard (refer to Chapter IV). To elaborate on the past behaviors that occurred at Fatumafuti, an attribute analysis is conducted on the basalt waste flakes recovered from two units to define the stage(s) of reduction present.

Assemblage variability over space and time refers to a change in the lithic technological strategy, resulting in differences in the reduction stages that would manifest themselves in the attribute analysis. A change in the chemical signature(s) of basalt by unit and/or layer is interpreted as change over space and/or time. While the comparison of lithic attributes and chemical signatures from units two units will determine if spatial variation exists, a comparison between the stratigraphic layers will determine if temporal variation exists.

To answer question three, energy-dispersive X-ray fluorescence (EDXRF) is used to identify the chemical signature(s) of worked basalt. The types of tools produced and the composition of the waste flakes left at a site provide vital information of the different strategies employed by the manufacturers, which is a reflection of the organization of their economic system (Winterhoff 2007).

To define the organization of lithic craft production I will determine if the lithic material examined from Fatumafuti are more indicative of a nucleated workshop organized by elites, or of master craftsmen producing for wider distribution (i.e., distribution of tools beyond the valley or island) and the accumulation of wealth

(Winterhoff 2007), or of part-time independent household production for provisioning the community. Costin (1986:328) defines specialization as the "regular, repeated provision of some commodity or service in exchange for another." It is logical to question the archaeological presence of economic specialization in any situation where the potential for differential access to, and control of, a valued resource(s) exists. In complex societies, such as Samoa, the presence of differential access to resources was often the basis for the development of centralized power (Arnold 1984). In the Samoan chiefdom, basalt tools were used as political wealth because adzes were used in the manufacture of high status craft items, employed as specialized tools by a formalized carpenter guild, and were manufactured within a politicized geography (Winterhoff 2007).

To address the nature of production, a model adapted from Arnold (1984) is used to define the presence of lithic craft specialization at Fatumafuti. This model consists of five indicators: 1) a high relative absolute volume of stone tool production methods; 2) a certain degree of standardization (i.e., consistency) in tool production methods; 3) repeated intensive use of well defined activity areas (i.e., craft workshops); 4) evidence for some degree of control over critical stone resources; and 5) the presence of specialist paraphernalia with certain burials (Arnold 1984).

Identification of each indicator will require the analysis of various aspects of the Fatumafuti assemblage. The purpose indicator one is to determine the volume of lithic debris characteristic of a lithic workshop. Therefore, I look towards the literature on known workshops to define what is meant by large absolute volume of lithic debris. I will then calculate the density of lithics from my excavation units at Fatumafuti and compare those to Winterhoff's (2007) density calculations for other sites in Tutuila.

Indicator two is a specific type and degree of standardization in tool production methods. Standardization refers to consistency of a controlled and specialized system of production which reflects a highly regularized decision making procedure (Arnold 1984). I will look for patterns that suggest the routinization of manufacturing techniques, as this behavior would result in a limited range of variability in the lithic waste flakes (Torrence 1986).

The third indicator is the repeated intensive use of well defined activity areas. According to Arnold (1984) workshops represent repeated activity in sharply delineated areas that are separate from living spaces, such as house floors and food preparation areas. Using the density calculations obtained from the first parameter, I will determine if these numbers change over space and time. This will enable me to isolate an area of the site where production was most concentrated.

The fourth indicator, evidence of some degree of control over critical stone resources, will be examined using EDXRF to identify the chemical signatures of the basaltic artifacts found at the site. My goal is to determine if discrete clusters of chemically similar artifacts group in such a way that the number of extrapolation sites used can be identified. Once this is accomplished, I compare my results to chemical signatures from geologic samples obtained from four different volcanic provinces on Tutuila to establish if any overlap in chemical signatures exists. If the lithics from Fatumafuti are chemically similar to one or more volcanic provinces on island, it may suggest that this resource was not controlled by the inhabitants of Fatumafuti, depending on the distance of the site to the source. I do not address indicator five as there is not reports of specialist paraphernalia recovered from the burials at Fatumafuti.

SITE DESCRIPTION

Lithic debitage for this analysis is obtained from the excavation of Fatumafuti (AS-25-062). Fatumafuti is an occupied village located on the south coast of Tutuila Island (Figure 1.3).

Figure 1.3 Topographic map identifying Fatumafuti.

Field work was conducted in March 2004 by William A. Shapiro and Solomon H. Kailihiwa under the supervision of Dr. Paul L. Cleghorn, principal investigator. This project was conducted to mollify the negative effects caused to a subsurface cultural layer during a highway improvement project (Cleghorn et al. 2005). The goals of this project was to provide chronological information on the settlement of the Fatumafuti area, collect data regarding the horizontal and spatial distribution of subsurface cultural deposits, collect information on cultural features (i.e, hearths and *ili'ili*), and to recover artifacts to further our understanding of the material culture associated with the settlement of Fatumafuti (Cleghorn et al. 2005). Excavation units were placed at the coastal portion (units 1 and 3), inland portion (unit 2) and central village area (units 4 and 5). During the excavation, seven features were uncovered: three burials, one possible hearth, one remnant hearth and two large-scale fire episodes. The majority of the cultural material recovered was lithic debitage and midden shells. Nine radiocarbon samples were obtained (Table 1.1) and these dates indicate that this coastal portion of Tutuila was first occupied between the 7th and 8th centuries AD (ca. AD 640-1430) (Cleghorn et al. 2005).

Table 1.1 Radiocarbon Dates for Layers Analyzed.

Sample No.	Provenience	Material	Calibrated Age 1 (one sigma)	Calibrated Age 2 (two sigma)
Beta-193871	Unit 1/3 III (67 cmbs)	Bone Collagen	AD 990-1020 (960-930 BP)	AD 960-1040 (990-910 BP)
Beta-193872	Unit 1/3 III (69 cmbs)	Bone Collagen	AD 980-1020 (970-930 BP)	AD 900-1030 (1050-920 BP)
Beta-193874	Unit 1 III (53 cmbs)	Bone Collagen	AD 1010-1040 (940-910 BP)	AD 990-1160 (960-790 BP
Beta-193876	Unit 2 II (110 cmbs)	Charred Material	AD 1310-1360 (1230-1210 BP) And AD 1390-1420 (560-530 BP)	AD 1300-1430 (650-520 BP)
Beta-193877	Unit 2 II (130 cmbs)	Charred Material	AD 1300-1410 (650-540 BP)	AD 1290-1420 (660-530 BP)

According to Cleghorn and colleagues (2005) the earliest activities at the site are associated with large-scale forest clearing most likely related to agricultural activities. The abundance of basalt flakes recovered from the coastal portion of the site (units 1 and 3) suggests that stone tool manufacture occurred; however, Cleghorn an colleagues (2005) posit that it is not in relation to adze production as only one adze blank and one preform were recovered from this area. Therefore, Cleghorn and colleagues (2005) conclude that the nature of tool production is unclear at this specific location. The Fatumafuti report indicates that habitation, or activity areas, was centered on the coastal portion of the site as units 1 and 3 yielded over seven kg of shell midden (Layer IV), while unit 2 yielded almost none (Cleghorn et al. 2005).

Cleghorn and colleagues (2005) state that Fatumafuti is a significant site because the information obtained from the excavations is important to the prehistory of Tutuila and Samoa. A late pottery component was identified from a pottery sherd found in the first layer of unit 2 (120-130 cm below surface area) near the base of the talus slope (Cleghorn et al. 2005). However, I feel that a closer look at the unit profiles suggests that colluvium deposited from the talus slope is responsible for the presence of pottery. The position of the unit at the base of the talus slope and the varying size and shape of sediment particles suggest that Layer 2-I was deposited in a high energy environment from an area farther up the slope. Therefore, it seems likely that mass wasting and overland flow is responsible for the secondary deposition of some of the material culture that originated from an upland location.

The examination of debitage recovered from units 1 and 2 required knowledge of the stratigraphic relationship of the unit layers. Cleghorn and colleagues (2005) indicate a temporal correlation of Layer IV in the three different areas of the site (units 1, 5 and 2) (Figure 1.4).

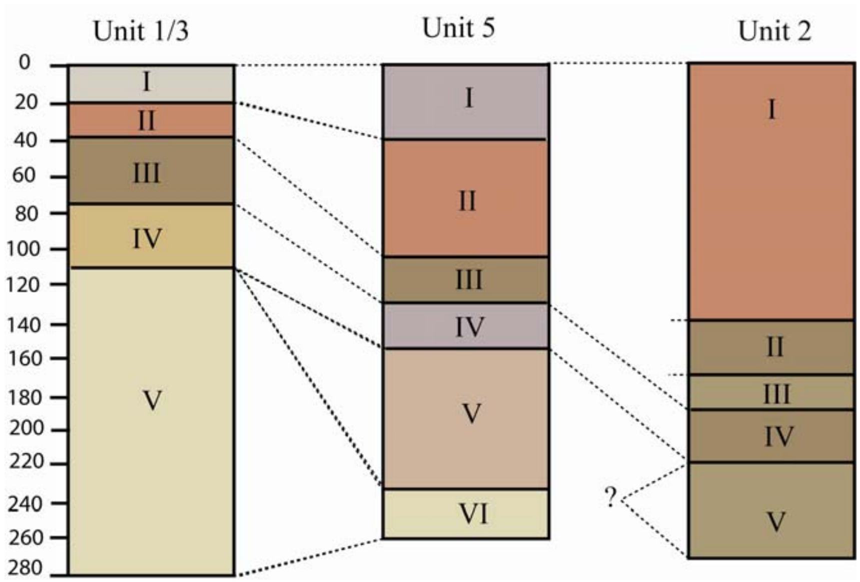

Figure 1.4 Stratigraphic profiles from site report (Cleghorn et al. 2005).

According to Waters (1992), when defining the temporal relationships at a site it is necessary to define the relative sequence of lithostratigraphic units, pedostratigraphic units, and erosional unconformities. These units and unconformities must be placed in absolute time to define the sequence and time of deposition, stability and erosion (Waters 1992). Surface elevations are important for reconstructing the geomorphology of any site. While elevations were not available to me, I used the stratigraphic profiles provided by Cleghorn and colleagues (2005) and arranged the units from west to east (from unit 2 to unit 5 to unit 1) and placed them at differing elevations to account for the change in slope. Although arbitrary, these elevations are reasonable based on length of the site, the distance between each unit and the decrease in gradient from the base of the talus slope to the parking lot near the beach (Figure 1.5).

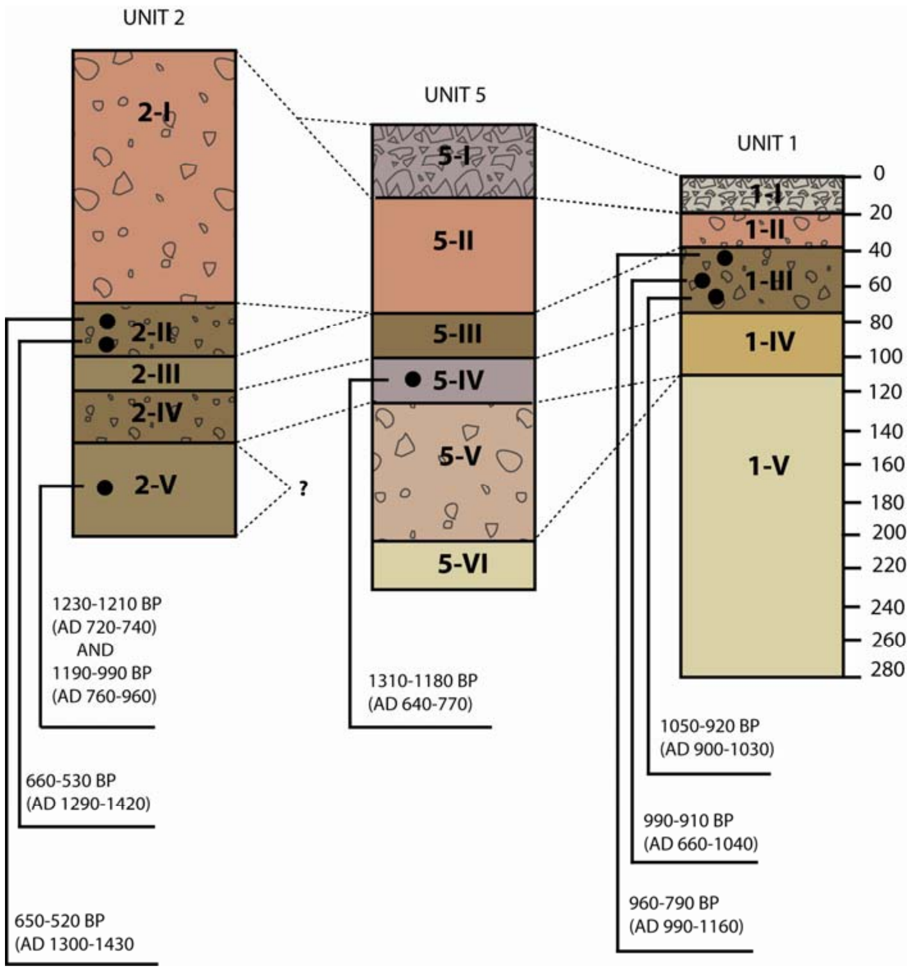

Figure 1.5 Revised stratigraphic profiles.

Using the dates obtained from unit 3 (1260-1060 BP) and the amount of sediment deposited (70 cm), Cleghorn and colleagues (2005) surmise that it took 1060-1260 years for 70 cm of sediment to accumulate. However, it is difficult to determine the rate of deposition at Fatumafuti as episodes of landscape degradation and stability create gaps in the depositional sequence (Waters 1992). The total time of deposition (degradation and stability) indicates how much time in the continuum of a stratigraphic sequence is recorded by material depositional units versus the combined time represented by nondepositional intervals (erosional unconformities and surface stability) (Waters 1992). Without full radiocarbon control, it is not possible to interpret the complexity of fluvial deposits (cutting and filling of sediments) at this time (M. Waters, personal communication, March 2009).

Debitage is analyzed from layers 1-III and 1-IV of unit 1, and layers 2-I and 2-II from unit 2. To determine their temporal relationship, I compared the combined radiocarbon dates from unit 1 (1050-790 BP) and those of unit 2 (650-520 BP). The radiocarbon dates from the unit profiles indicate that the material from Unit 1 layer 1-III is older than those of layers 2-I and 2-II in Unit 2. The description of the sediments in the layers of Units 1, 2 and 5 suggests that the dark red brown soil from layers 2-I, 5-II and 3-II represent one geomorphic event. This is supported by the varying sizes of cobbles and pebbles in layers 2-I and 1-II, which suggests that these sediments were deposited in a high energy environment, such as a mass wasting event. Below the dark red brown (cobbley/pebbely) clay is a complex sequence of juxtaposed colluvial sediments. Without full radiocarbon control, it is impossible to correlate these layers (M. Waters, personal communication, March 2009). Therefore, layers 2-I, 2-II, 3-III and 3-IV are treated as discrete colluvial packages for the purpose of this project. The image on the Figure 1.6 identifies the approximate location of unit 2 (shaded box with the X), illustrating the beginning of dense jungle on the left side of the image and steep slope above and behind the house. The image on the right is taken from the approximate location of unit 2 and shows the site spanning towards unit 1 and the coast.

Figure 1.6 Photographs of the site.

The radiocarbon dates at Fatumafuti suggest that occupation overlaps two cultural eras, the period between AD 300-AD 1000 and AD 1000–AD 1722. According to the site report (Cleghorn et al. 2005), debitage in the area around Fatumafuti represents good material for study because it may shed light on the period between AD 300 and 1000. This period is known as the “dark ages” in Samoan prehistory (Davidson 1979), and information obtained from Fatumafuti that dates this era may prove to be extremely useful in our attempt to understand the Samoan cultural sequence.

My research focused on the units 1 and 2 which are located on opposite ends of the site (Figure 1.7). Unit 3 is an extension of unit 1 on its northeast (NE) wall; however, material from unit 3 was not included in this analysis. These excavation units are located on the coastal side of the site nearest to main road. Unit 1 is 2m x 2m and was excavated to the depth of 155 cm and contains five stratigrahpic layers (Figure 1.8). The northeast quadrant was excavated to a depth of 255 cm and then hand-augured to 285 cm. Banyan roots are present throughout layers 1-III and 1-IV of Unit 1. Two features (feature 1A and feature 2) were excavated in unit 1 (Cleghorn et al. 2005).

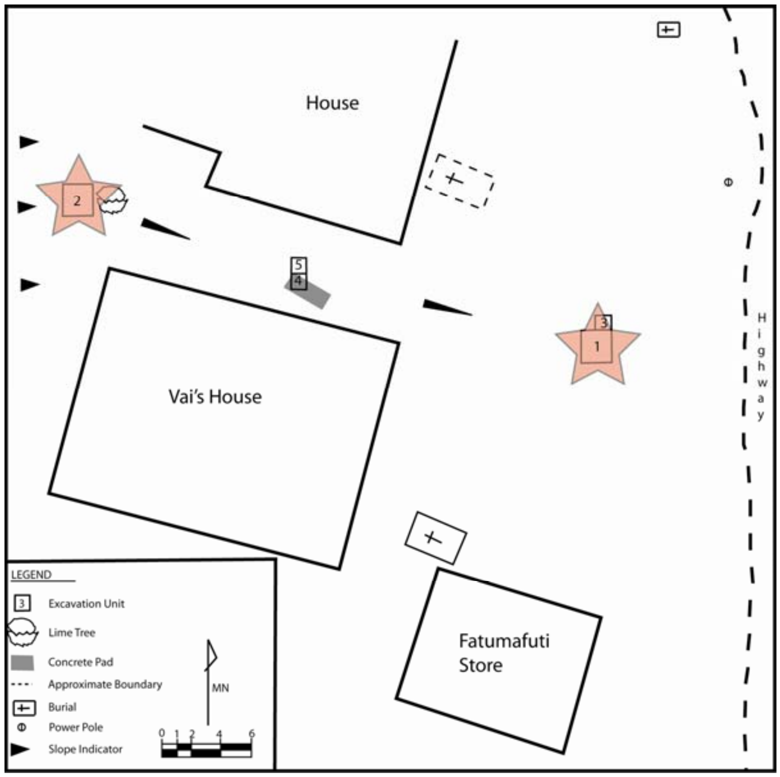

Figure 1.7 Fatumafuti site map.

The northeast quadrant was excavated to a depth of 255 cm and then hand-augured to 285 cm. Banyan roots are present throughout layers 1-III and 1-IV of Unit 1. Two features (feature 1A and feature 2) were excavated in unit 1 (Cleghorn et al. 2005). Feature 1A was a fully articulated human burial with both arms bent at the elbows and both legs slightly bent at a depth of 60 cm to 70 cm below ground surface (Cleghorn et al. 2005). Feature 2 was another fully articulated human, tightly flexed, at a depth of 45 cm to 60cm below ground surface (Cleghorn et al. 2005).

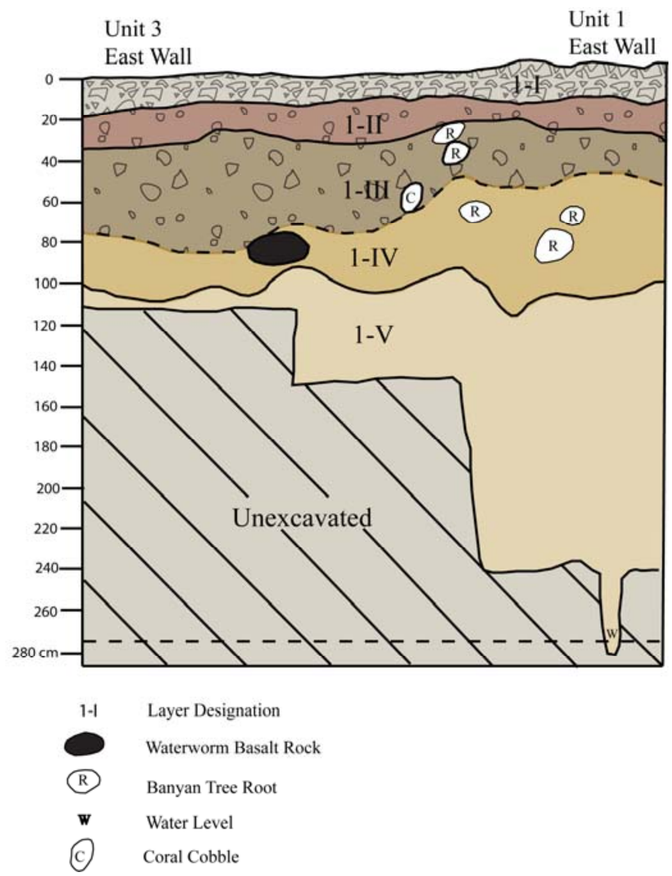

Figure 1.8 Stratigraphic profile of units 1 and 3.

Excavation unit 2 is 2m x 2m, and it is located at the base of the talus slope, on the inland portion of the site (see Figure 1.7). The majority of unit 2 was excavated to 170 cm below the ground surface; however the southeast quadrant was excavated to 210 cm. Five stratigrahpic layers were identified (Figure 1.9), mostly clay mixed with basalt pebbles, cobbles and boulders (Cleghorn et al. 2005) which is expected for sediments accumulated in high energy environments. Layers II and IV contain a large amount of charcoal which suggests two burn episodes occurred (Cleghorn et al. 2005); however, it is unknown if these episodes were cultural or natural.

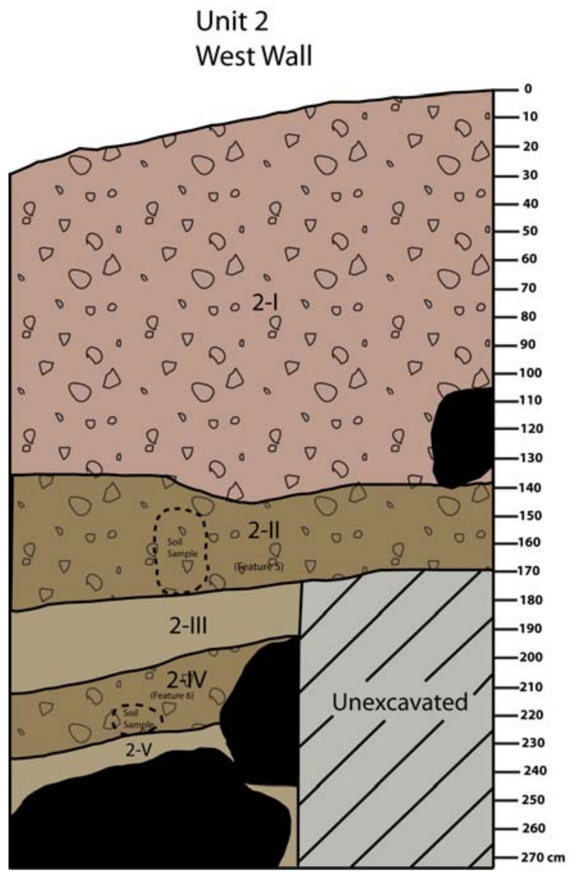

Figure 1.9. Stratigraphic profile of Unit 2.

Summary

Using the lithic material excavated from the coastal site of Fatumafuti, the goal of my thesis is to clarify the nature of tool production at this site. This will be done through the identification of the chain of reduction, its variability over space and time, the identification of chemical signatures of the basalt material used, and examination of the nature of lithic craft production. The results of these questions will add to the current knowledge of the cultural transformations that occurred during the course of Samoan prehistory (Lapita period to the present). One such transformation is the shift from the ceramic to aceramic periods. Fatumafuti’s temporal location on the cusp of this transition, and its temporal proximity to the Samoan Dark Ages, provide an opportunity to examine a period where little information is known.

CHAPTER II

CULTURAL SETTING AND ARCHAEOLOGICAL BACKGROUND

> The Maori speak of their ancestors coming to New Zealand in canoes,
> but the Samoans say that they came from the heavens.
>
> O. F. Nelson (1925:127)

In the various versions of the Samoan creation myth the origin of all things is attributed to the god Tagaloa-Lagi (Nelson 1925). In one such myth, Tagaloa sees Earth as a great expanse of water. He was drawn to it, intrigued at how the waves move about the surface of the ocean. He decided that an obstacle should be made to break these waves, and, thus, he created land. According to legend, the first island created was Manu' a, which became Tagaloa's dwelling place. From here his spirit moved upon the water. He threw a pebble that became Tutuila and planted a seed which turned into Upolu (Nelson 1925).

This chapter reviews the cultural sequence and archaeological background of Samoa. This overview positions the Fatumafuti assemblage in the broader context of Samoan prehistory and archaeological work conducted thus far. An understanding of the cultural periods before and after the occupation of Fatumafuti (at the end of the Aceramic period) will enable us to better understand the cultural transition that occurred at the end of the Aceramic period. Therefore, cultural activity on Tutuila pre- and post-Fatumafuti figures prominently with the goal of understanding the nature of production at the site.

GEOLOGIC SETTING

The Samoan archipelago is located in the expansive geographic area known as Oceania, which consists of Melanesia, Micronesia and Polynesia (Bellwood 1975). Island chains from New Guinea eastward to Fiji are geographically known as Melanesia and contain a diverse linguistic population. To the north of Melanesia, Micronesian island groups consist of Palau, Mariana, Caroline, Marshall and Gilbert islands. The Polynesian triangle is bounded by New Zealand, Easter Island and the Hawaiian islands (Figure 2.1).

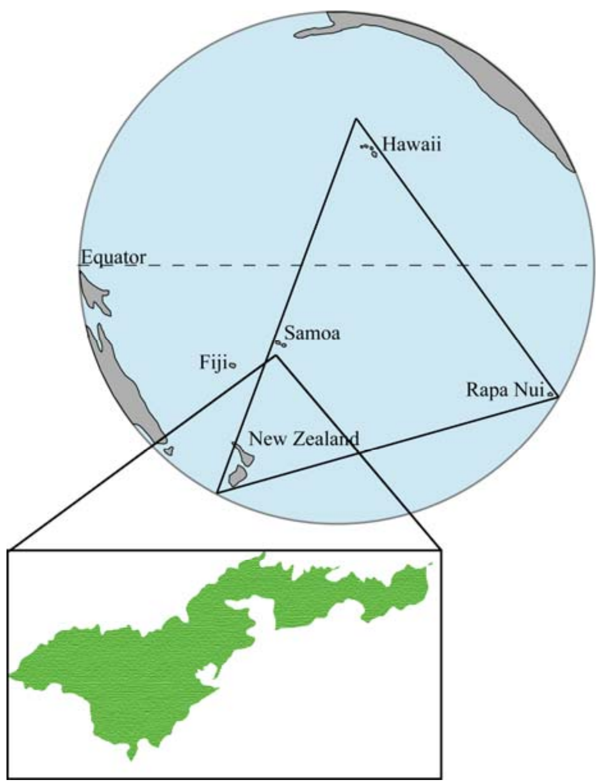

Figure 2.1 Map of the Polynesian Triangle.

The islands are progressively older from east to west. Ta'u (in American Samoa), represents the most recent volcanic activity (less than 100,000 years ago) (McDougall 1985) and Savai'i (in Independent Samoa) is the oldest, dating to about 2.52 million years ago (Clark and Michlovic 1996; Duncan 1985). The main period of subaerial volcanism that formed Tutuila took place between 1.54 and 1 million years ago (Clark and Michlovic 1996; McDougall 1985). The formation of the Tafuna Plain and Aunu'u is more recent addition, dating to approximately the late Holocene (Stearns 1944; MacDougall 1985; Clark and Michlovic 1996). During periods of volcanic inactivity on Tutuila, deep valleys and high cliffs were carved by rain and erosion. Melting glaciers, ca. 2000 years before present (BP), created a rise in sea level which filled in these valleys and shifted the reef system. The fringing reef growing around Tutuila contributes sand-sized particles to the island's beaches (Cleghorn et al. 2005; Stice 1981). The geologic history of the Samoan islands is complicated by post-erosional volcanism. The most recent eruptions occurred during the first decade of this century on 'Upolu and on Savai'i (Clark 1996; Stearns 1944).

CULTURAL SETTING

Due to the location and isolated nature of Pacific island groups, Polynesia was one of the last geographic areas to be colonized on Earth (Kirch and Kahn 2007). Up until 8,000 BP, New Guinea and Australia were joined by the Sahul Shelf which presented humans with an additional 6,437,400 square km. for settlement (Bellwood 1975). Evidence for the migration of Austronesian speaking peoples out of Southeast Asia and into Oceania has slowly begun to accumulate through the employment of linguistics, physical anthropology, ethnobotany and archaeology (Kirch 1984). The 26 Polynesian languages (Biggs 1971) form a discrete branch of the Austronesian family, which collectively contains between 300 and 500 languages, spanning from Madagascar to Rapa Nui (Dyen 1970; Kirch 1984). For Austronesian horticulturalists to have expanded out of Southeast Asia into Melanesia and beyond, the development of specific technologic skills and adaptive strategies was required (Kirch 1984; Shutler and Mark 1975). Preconditions for such a migration necessitated the need for water craft and voyaging abilities, along with horticulture and advanced fishing techniques.

The prehistoric settlement of the Pacific was a purposeful and directed migration that was motivated by a variety of reasons (Finney 1977; Irwin 1989; Levison et al. 1973; Weisler 1997). For instance, changing landscapes, as a result of human interaction, altered local ecosystems through deforestation, cultivation, marine resource degradation and the decline of endemic species (Clark 1996). Once in Polynesia, the first inhabitants were confronted with a novel set of environmental conditions and constraints. In the immediate homeland of the eastern Lapita pioneers, the islands in Melanesia consist of large continental islands that are geographically old and complex with a rich variety of biota. Island chains beyond Lau, Tonga and Samoa consist of recent volcanics and/or of coral reefs. Being that it is a geologically active area, there is much tectonic activity and volcanism (Kirch 1984). The remote islands of Polynesia are limited in terms of sustainable resources, poor soils, unpredictable rainfall and a low diversity of terrestrial fauna (Weisler 1997).

Ceramics, chert and obsidian flake tools, stone and shell adzes; as well as other aspects of material culture are among the expected archaeological manifestations of the Austronesian techno-complex. Sites as far away as Taiwan (Chang 1969), consisting of earthernware and cordmarked ceramics associated with ground stone adzes, have been used to demonstrate a connection to Austronesian peoples by *c*. 8000 BP (Kirch 1984). Evidence from the Neolithic techno complex in Southeast Asia supports a relation with Oceanic peoples. Therefore, identification of the Lapita cultural complex supports the Austronesian dispersal through Melanesia into Polynesia. This complex is primarily defined on the appearance of dentate-stamped pottery, and its presence in the archaeological record represents the initial movement of people into the farther reaches of Oceania. Initially, most excavators placed a narrow focus on decorated ceramics, essentially excluding other apparent material remains; therefore Lapitoid ceramics represent a diminutive aspect of the larger cultural complex (Kirch 1984). The Lapita diaspora colonizing Western Polynesia may have begun as early as 3100 BP (Kirch 1997:73; Smith 2002; Spriggs 1990).

Archaeological evidence and historical linguistics has revealed a split of the ancestral Lapita group into two distinct branches, Western and Eastern. Detailed analyses conducted by Green (1978, 1979a) discovered differences in Lapita design motifs between these two groups (Kirch 1984). Together, Western Polynesia and Fijian Lapita sites encompass the Eastern Lapita interaction sphere (Smith 2002). This interaction sphere (specifically Fiji-Tonga-Samoa) maintained contact through inter-island voyaging within the triangle of archipelagos. According to Kirch (1984:48), “by the time this founding population had arrived in the Fiji-Tonga-Samoa area, it reflected generations of adaptation to an island mode of existence." Research focused on the Eastern Lapita complex within this area will provide further information of the transformation from Lapita to a Polynesian cultural entity (Kirch 1984).

Ancestral Polynesian Origin

In the late Pleistocene, human populations expanded into previously unoccupied areas. The initial colonists of the Fiji-West Polynesia region shared elements of the Lapita Cultural complex (Green 1979, 1992; Kirch 1984). The current consensus (Table 2.1) for the cultural chronology in Western Polynesia is characterized by a regional progression from Early Eastern Lapita, through Polynesian plainware, the emergence of an Ancestral Polynesian society and then to the disappearance of pottery in the aceramic period (Burley et al. 1995). Kirch (1984) uses the term Ancestral Polynesian culture as the technological and social manifestations that emerged from the Lapita transition in Western Polynesia by about 2500 BP. Dentate-stamped decorations give Lapita its diagnostic feature. Sites bearing Lapita ceramics are found throughout an enormous expanse, from the Admiralty Islands (north of New Guinea) all the way to Samoa. It is conventionally thought that within a few centuries of the colonization of Western Polynesia, dentate stamping was abandoned and replaced by a simpler form known as Polynesian Plain Ware. East of Samoa, pottery sherds are rare and thought to reflect exchange of goods from Fiji or West Polynesia. The gradual decline and disappearance of ceramics is one of the major technological factors identified in the transition from

Lapita to Ancestral Polynesian. This shift was accompanied by the formation of the early Polynesian adze kit, which was originally derived from a set of early Lapita prototypes (Kirch 1984).

Table 2.1 Samoan cultural chronology (adapted from Crews 2008).

Period	Date Range	Settlement Pattern	Material Culture
Ceramic periods **Early Eastern Lapita**	3100-2700BP	Initial coastal settlements	Early Eastern Lapita decorated pottery Type I adze, possibly III, IV and V
Late Eastern Lapita	2700-2300BP	Coastal Settlements	Late Eastern Lapita decorated pottery Type I adze, possibly III, IV and V
Polynesian Plainware	2300-1700BP	Coastal and inland settlements	Undecorated pottery Type II and IV adzes are included to earlier forms
Aceramic periods **Dark Ages**	1700-1000BP	Coastal and inland settlements	Absence of pottery Type VII and VIII Adzes
Recent	1000-250BP	Inland settlements monumental architecture, fortifications and star mounds	Absence of pottery Type VII and VIII adzes
Historic Period	250BP-Present	Coastal and inland settlements	Absence of pottery and stone adzes, metal, nails and glass beads, historic European artifacts

The initial separation of the Eastern Lapita interaction network is signaled by the disappearance of dentate stamped pottery in Fiji and Western Polynesia, and the eventual departure of ceramic sequences. The apparent shift of cultural manifestations in ceramics is viewed as the progression from decorated vessels to a more simple form that is rarely decorated, with a larger percentage of thick coarse ware (rather than thin fine ware ceramics). Interaction between Fiji and West Polynesia began to decline, and by ca. 2500 BP Western Polynesia became relatively isolated from island communities farther west (Smith 2002).

Aceramic Period

Pottery was not abandoned uniformly throughout the Samoan archipelago; instead a differential shift in ceramic trends is seen over space and time (Davidson 1981). The disappearance of pottery cannot be attributed to a lack of suitable clay resources, as local materials were used for manufacture in Western Polynesia for more than a thousand years (Kirch 1984). Artifact analyses and comparative linguistic studies suggest that the Polynesian language and cultural community underwent a long period of development in isolation, possibly as long as 1,000 years (Davidson 1981). Little is known of the period between the post-pottery and pre-monumental architecture phases between 1700 and 1000 BP. Formally known as the "dark ages," sites during this time are less visible in the archaeological record due to the abandonment of pottery (Kirch 1984). Charcoal was often not collected from upper pottery bearing deposits for dating because sites containing pottery were assumed to date to the earliest period of Samoan prehistory. This perpetuated a poor understanding of this time period; thus the period between 1700 and 1000 BP requires further definition (Cleghorn et al. 2005). Innovations within the material culture are apparent in the Samoan adze kit, as triangular and trapezoidal-section tool forms emerged (Kirch 1984). Toward the end of the first millennium, intriguing settlement patterns begin to appear in the Samoan islands. This current study will begin to help address this lack of understanding.

Monumental Building Period

According to Davidson (1979), the construction of monumental architecture is indicative of the most recent phase of Western Polynesian prehistory. The large-scale construction of basalt architecture is attributed to the rise of complex chiefdoms which stemmed from growing populations and intensified food production (Kirch 2000). An increase in warfare (both intra- and inter-island) is believed to have led to the construction of fortifications (Kirch 2000). These consist of ridges fortified by the creation of transverse trenches or other earthworks. An example of this would be the Tataga-matau quarry, near the village of Leone on Tutuila, which was utilized during a time of increased social complexity. The movement towards intensified complexity implies that those in power would gain control of local resources for the redistribution of wealth (Arnold 1984). Tataga-matau was heavily fortified, supporting this social trend. Additionally the basalt that was extracted for the manufacture of stone tools is found on islands far removed from the Samoan archipelago.

Other structures characteristic of this time period is “star” or “cog mounds,” a term referring to any mound that is composed of rock or earthen fill and a stone facing from 1-14 courses high (Herdrich 1991). Known in Samoan as *tia*, these mounds have projecting arms, often referred to as rays, that average approximately 3 m long and 3-4 m wide (Herdrich 1991). Many hypotheses have been posited for the construction and use of these mounds, but the most often cited hypothesis suggests that they functioned as pigeon-snaring mounds. Buck (1930) states that the *tia* were permanent structures but the fowling houses were built each season. A good location was chosen in the forest, usually on a ridge, and land was cleared and leveled to form a platform on which fowling houses where built. These houses were a shelter of green vines that concealed the sportsmen and these houses received names according to their position on the platform (Buck 1930).

Inter-Island Contact

Sometime during the Aceramic period contact between island groups increased which enabled Polynesian social systems to flourish through the exchange of goods, ideologies and people. According to Kaeppler (1978), the social relationship between Tonga, Fiji and Samoa became an important union as it was necessary to exchange marriage partners between the island groups. For instance, the Tongan social system is based primarily on a bilateral kin relationship. According to status, sisters are high and brothers are low, thus the person with the highest ceremonial status is the father's eldest sister and those with the lowest are the mother's brother. However, a male chief's children would be outranked by his sister's. To negate this, the highest chief's sister was married to a Fijian and their children would belong to the Fijian line. Samoans were too similar to Tongans for the patrilineal line to constitute a foreign house. Instead, Samoans were used as an intermediate class of social attendants to interact with the Tongan elite. Certain individuals in the Tongan social system were considered sacred, and it would be dangerous for ordinary mortals to touch them. The Samoan social system was of the same type so they acted as a liaison. In the Historic period Samoans would tattoo, cut hair and prepare sacred individuals for burial. In this context, the trade of Fijian and Samoan goods was required for such ceremonial occasions, which furthered the exchange of items such as fine mats, baskets, bark cloth, food, and stone tools (Kaeppler 1978). However, it is uncertain when in prehistory these social dynamics developed.

An increase in inter-island contact often caused social conflicts; therefore warfare and force played a role in the political change in West Polynesia (Kirch 2000). Evidence of increased conflict is identified in local oral histories and in the presence of fortifications throughout the region. Oral traditions indicate that before 1840 numerous ridge-top settlements were thought to have been constructed as a response to the legendary period of war between Tongans and Samoans (Davidson 1979; Pearl 2004). The mountain ridge-top settlements (thought to have been built between AD 1270 and 1310) represent a major shift in settlement patterns (Pearl 2004). The construction of other large mounds, both conventional and star shaped, gives credence to the development of considerable social stratification and the rise of chiefly powers. Today, the bulk of the modern population lives on the coast. Archaeological evidence suggests that coastal concentration was instigated by European contact, and until this point settlements were more evenly distributed between coastal and inland areas (Davidson 1979).

Historic Period

In 1722 the Dutch navigator Jacob Roggeveen sighted the islands but did not land (Cleghorn et al. 2005). Then, in 1768 the sailor Bougainville passed by and named the island group the Navigators due to the native's proficiency with canoes. It was not until 1787 that a ship of French sailors, under the command of La Perouse, landed on Tutuila. The interaction between the islanders and Europeans was hostile and resulted in the death of 13 Frenchmen. Today this area (A'asu) is known to many as Massacre Bay. Western contact with the islands was limited after this incident, with the exception of the occasional whalers, deserters, beach combers and merchants (Clark 1996). The Samoan islands become increasingly less isolated as missionaries eventually made their way to the Pacific. In 1830, John Williams of the London Missionary Society (LMS) arrived in Samoa. Here, Williams and his followers had a profound impact on Samoans and their culture (Cleghorn et al. 2005). From there, the lines of contact were permanently open as western influences grew and substantial socio-cultural changes occurred in Samoa (Clark 1996). Sixty-nine years after the arrival of John Williams, the Samoan islands were divided into two political units: Germany gained control over Upolu, Savai'i, Manono and Apolima and to this day the United States control the islands of Tutuila, Aunu'u, Ofu, Olosega and Ta'u (Clark 1996; Cleghorn et al. 2005).

Early Ethnographic Work

Highly important work was conducted by missionaries during the late 19th century which illustrated the Samoan way of life prior to any major western disruption. For instance, John Stair (1897) compiled his accounts during the late 1800s working as a missionary. Stair's book, *Old Samoa*, discusses everything from physical geography to Samoan costumes, illustrating Samoan culture shortly after European contact. In the early 20th century, Augustin Kramer (1902), a German social scientist, presented his ethnology entitled *The Samoa Islands*. In this ethnology, Kramer (1902) seeks to understand Samoan religion, history, customs, gender roles, and forms of government, all of which have provided anthropologists and sociologists with another early view of Samoan culture. Others, such as Peter H. Buck (i.e., Te Rangi Hiroa), describe in detail various aspect of Samoan material culture. In his book, *Samoan Material Culture*, Buck (1930) discusses several aspects of Samoan life from the construction of houses to games and religion. Buck's work introduces the first in-depth discussion of Samoan stone tools. Buck's (1930) adze typology was later used by Green and Davidson (1969) to create the typology currently used to today.

Williamson's (1924) three set volume entitled *The Social and Political Systems of Central Polynesia* was important for its description of political systems in central Polynesia and as a motivational force, as it inspired many others to write about chiefdom societies. Margaret Mead's pivotal yet controversial book, *Coming of Age in Samoa*, popularized Samoa within the Western culture (Mead 1928), while Marshall Sahlins' (1958) book, *Social Stratification in Polynesia*, provides a study of adaptive variation in culture and attempts to relate differences in Polynesian social systems and stratification to differences in the adaptation of these cultures to their environment. Sahlins' work (1958, 1965) has served as an impetus for the study of chiefdom societies worldwide, so much so that stratified Polynesian societies are often used as models that are applied to cultures all over the world. Much of what is known about Samoan stratified kinship societies is obtained from Sahlins, and his work is relied on heavily in this thesis.

ARCHAEOLOGICAL BACKGROUND

The above pages summarized much of what is known about the last 3,000 years of history in Western Polynesia and Samoa. The remaining part of this chapter focuses on the archaeological background of Samoa. Minor archaeological interest in the Pacific began in the early part of the 20th century with surface surveys of monumental architecture and a few unsystematic excavations. Systematic attention to this area did not begin until after World War II (Kirch and Kahn 2007).

The focal point of the Samoan archaeological agenda has centered largely on the issues of Polynesian origin and chronology for an extended period of time; however, there has been a proliferation of work resulting in more than 500 new literature citations since the early 1990s (Kirch and Kahn 2007). According to Kirch and Kahn (2007), major research themes in Polynesian archaeology have included: 1) defining the nature and duration of long-distance interaction spheres; 2) impacts of human colonization and settlement on local ecosystems; 3) differing types of Polynesian economic systems and changes over time; and 4) social political change. While these issues are all important to the understanding of Polynesian prehistory, some of this research has been concentrated on islands other than Samoa. For instance, the Samoan archipelago were considered to be less culturally active while islands such as Hawaii were considered to represent more stratified societies, therefore attracting more attention in the past. Paleoecology and human impact on island ecosystems is one type of research conducted in Hawaii and Fiji (Kirch and Kahn 2007). While there are many important research topics, this chapter concentrates on themes relating to Samoa, such as Ancestral Polynesian origins, defining the cultural sequence, identifying settlement patterns, changes in material culture, long distance interaction and trade, geochemical analysis, and Tutuilan basalt extraction site.

In Samoa, the focus of archaeology progressed in a series of phases which has contributed to our understanding of Polynesian prehistory. During the first phase of archaeology, cultural chronologies for individual island groups in the region were established. During this time, archaeologists working in Samoa focused their efforts on understanding prehistoric settlement patterns. As a gradual understanding of the cultural sequence was gained, research questions shifted towards the origins of ancestral Polynesians, specifically whether Polynesians arriving in Samoa did so with their cultural identity fully intact. Archaeological investigations sought to accumulate evidence of early occupation sites. The Lapita cultural complex (Green 1978, 1979a) began to emerge as an important diagnostic for early Polynesian settlers. Recently, archaeology in Polynesian has been aimed at understanding population growth and socioeconomic competition (i.e. intensification) within delimited areas (Leach 1999). Archaeologists are continually expanding upon the methods available to them. For instance, the use of geochemical analysis on basalt rocks has proven beneficial for tracing the movement of prehistoric Polynesians. Through geochemical research, a more complete picture of migration and trade has begun to emerge, along with intra-island studies of political and social complexity. The following pages will discuss these topics in more detail.

Lapita Cultural Complex

In the 1980s and 1990s, much field research was concerned with the Lapita Cultural Complex, specifically trying to identify archaeological manifestations of the diaspora of Austronesian-speaking peoples out of Southeast Asia and into remote Oceania (Kirch and Kahn 2007). Throughout the 1980's, information Samoan prehistory was derived almost exclusively from Upolu, Independent Samoa, but during the 1990's excavations in American Samoa expanded and changed our view of Samoan prehistory (Clark and Michlovic 1996). The chronological placement of Samoan Lapita is important to the theories of Lapita expansion and the development of Polynesian Plainware (Petchey 2001) because it aids in our understanding of peopling of the Pacific. Archaeological signatures from this time are helpful for the interpretation of cultural behaviors. These interpretations bring insight to the emergent complexity of the stratified kinship society that may have been established during the occupation of Fatumafuti. The region of Western Polynesia is regarded (Green 1981) as the Polynesian homeland. Within this homeland area, Samoa represents the eastern-most extension of the Lapita Cultural complex (Clark and Michlovic 1996). This section reviews four important sites in the Samoan archipelago dating to the Lapita time frame and their relevance to Samoan prehistory.

On the northwest tip of Upolu, Independent Samoa, diagnostic sherds from the Lapita cultural horizon were found while dredging a new ferry berth and turning basin for the interisland ferry at Mulifanua (Dickinson and Green 1998). The Mulifanua ferry berth site is the only site in Samoa with dentate-stamped Lapita wares and is the most easterly Lapita site in the Pacific (Petchy 2001). Information in the site's stratigraphy was derived from dredging materials and excavation. Most sherds were recovered from a thin humus-rich layer lying below a layer of reef-derived calcareous sand, tightly bound together by interstitial calcareous cement (Dickinson and Green 1998). The calibrated radiocarbon dates place the occupation of Mulifanua at around 2880-2750 BP (930-800 BC).

The deeply stratified coastal site of To'aga, on the Island of Ofu in American Samoa, contains evidence spanning the entire Samoan cultural sequence. The site occupies an interfacial geomorphological setting, where both mass wasting of terrigenous sediments and the accumulation of beach ridge calcareous sediments contribute to the stratigraphy at To'aga (Kirch et al. 1990). A ceramic deposit identified from a single test pit enabled Hunt and Erkelens (1993) to characterize the To'aga ceramic assemblage as representing three phases: 1) Early (3250-2350 BP), 2) Middle (2500-2000 BP), and 3) Late (2000-1700 BP). Additionally, six classifiable adzes/adze fragments were found (Kirch1993). Those in association with ceramics are plano-convex Type V, a widespread and common adze type found throughout the ancestral Polynesian region, but disappear early in the first millennium AD (Kirch and Hunt 1993; Smith 2002).

The presence of ceramics at the Aoa site, on the Island of Tutuila, represents an important early occupation component. Clark and Michlovic (1996) consider the ‘Aoa assemblage to be similar to that of To’aga due to the occurrence of thick and thin wares throughout the deposit (Smith 2002). The ceramic assemblage is described as plainware and the radiocarbon dates range from early Eastern Lapita to the plainware and mound-building period of the established cultural sequence (Smith 2002). According to Clark and Michlovic (1996) ‘Aoa is significant for Samoan prehistory for several reasons: 1) it is the only ceramic residential site known on Tutuila, 2) the earliest deposits at ‘Aoa (3000 BP) represent some of the oldest known in the Samoan archipelago, 3) despite the early dates none of the ceramics display dentate stamping characteristic of Lapita, 4) there is a late ceramic component that indicates pottery use continued 1000 years after it was supposedly abandoned, 5) volcanic glass and basalt artifacts are more abundant than at any other residential site reported for Samoa, and 6) there is a good record of extensive geomorphological and sea-level changes at ‘Aoa which is important to our understanding of where early archaeological sites may be located.

Aganoa Village (AS-22-43), located on the eastern portion of Tutuila, contains dates ranging from approximately 2,700 BP to 300 BP (Crews 2008; Welch 2008). Analysis of the materials recovered from the site revealed several interesting observations. Findings from a lithic analysis preformed by Crews (2008) suggest that contrary to Moore and Kennedy (2003), who identified the site as a lithic workshop Aganoa was in all actuality a residential site that was occupied for a long duration of time. During this time, adzes were imported and scrapers were manufactured on site and used for domestic activities. The lack of polishing stones (*foagas*) and the presence of rejuvenation flakes support the conclusion held by Crews (2008). The conservation and recycling of material would not have taken place at a workshop, and the evidence of tool recycling suggests that preferred lithic material was not easy to come by. Unusual tool forms indicate that the Samoan tool kit is more diverse than previously thought. Additionally the complete lack of scraper tools in the earliest cultural period indicates that during the period of initial occupation, inhabitants at Aganoa relied less on agricultural subsistence strategies and more on marine food resources (Crews 2008).

Excavations at Aganoa recovered 47 volcanic glass flakes, 7 un-worked nodules and 11 cores. Welch (2008) preformed a lithic attribute analysis on the volcanic glass artifacts recovered and determined that the material was restricted to a size of no more than 3 cm in diameter. Cores were used to remove usable flakes through unidirectional bipolar reduction. Some cores did contain evidence of multi-directional flake removal as a result of core rotation during removal. The morphology of flake platforms and terminations is variable, but these attributes support a predominance of compressive force to remove flakes. The production of volcanic glass flakes at Aganoa is expedient, utilizing hammer and anvil technique to overcome the small package size of the materials (Welch 2008). The utilization of this material ceased along with pottery, so it is considered a small component of early material culture on Tutuila.

Mulifanua, To'aga, 'Aoa and Aganoa are among the earliest sites in the Samoan island chain with occupations dating back 3000 BP (Clark and Michlovic 1996). Calibrated dates in the Polynesian Plainware component, within the lowest levels of occupation at ‘Aoa and To’aga, are contemporary with Mulifanua (Petchey 2001). The distinct style of Samoan plainware conveys evolutionary changes in the ceramic tradition over time. Earlier assemblages are thin-walled, fine-tempered sherds while the later assemblages have thick-walled, coarse-tempered sherds (Clark and Michlovic 1996). Therefore, according to Petchey (2001), Clark (1996:450) suggests that decorated sherds from Mulifanua may represent trade ware brought in from outside the archipelago. The To’aga sequence also spans a period when ceramics were changing from dominant thin, fine-tempered ware, to thick, coarse-tempered ware. Kirch and colleagues (1990) state that this ceramic change closely matches the sequence defined by Green (1974:245-250) for Western Samoa. Although the islands of Eastern Samoa are geographically isolated from Upolu and Savai’i, continuous cultural contact is implied by these parallel developments (Kirch et al. 1990). Ceramic evidence from ‘Aoa suggests that a ceramic industry existed at the site as late as the 16th century. This finding is not in agreement with the conventional culture-historical model for Samoa, as ceramics found in late contexts at other sites in Samoa are found in secondary context as a result of disturbance. According to Clark and Michlovic (1996) the ‘Aoa excavations compliment the work at To’aga. The To’aga site has a long term buried occupation located in deposits similar to those of ‘Aoa, at the base of a mountain where materials are buried under approximately 2 meters of sediment. Clark and Michlovic (1996) state that work at ‘Aoa sustains Kirch and Hunt’s claim that early sites in the Samoan group are likely to be deeply buried.

Until recently, the consensus among archaeologists identified the earliest sites in Samoa as being located along the coastal margin. Excavations at the highland ceramic site of Vainu'u (AS-32-016), on Tutuila, provide evidence for highland use by 2,300 BP (BP 2350-2340 at 1 sigma, Beta-240793) (Welch 2008). Vainu'u has been interpreted as a non-residential site, possibly used repeatedly for agriculture and/or tree felling for the construction of houses and canoes. The material correlates recovered fit within the Eastern/Late Eastern Lapita material assemblage (Hawkins 2008; Welch 2008). The existence of this site (the time, location and artifacts recovered) requires a reconfiguration of the current cultural chronology.

Polynesian Origins and Chronology

Two of the most fundamental issues in Polynesian archaeology regard Polynesian origins and cultural chronology (Kirch and Kahn 2007). During the 1960s, extensive archaeological research was carried out by Roger Green and Janet Davidson in Independent Samoa (Green and Davidson 1969a, 1974), and then in the 1970s by Jesse Jennings and his colleagues (Clark and Herdrich 1993; Jennings et al. 1976; Jennings and Holmer 1980) to interpret the cultural sequence in Samoa. Their early work provided a baseline for future studies in the region. From their excavations on Western Samoa, Green and Davidson (1974) established a Samoan sequence demonstrating that the first inhabitants settled in Western Samoa approximately 800 B.C. and brought with them Eastern Lapita style ceramics. Major changes of cultural significance are hard to identify. Around 2700 BP pottery was locally produced, first in Lapita and then in Plainware style. Changes in pottery and the Samoan adze kit occurred early, and it appears that pottery was used during the first 1,000 years of occupation and then abandoned. Inland expansion and occupation is evident, with areas reflecting alternating use of agriculture and habitation. Around the 1000 BP mounds serving as residential platforms began to appear inland and on the coast (Green and Davidson 1974).

Additionally, Green and Davidson (1974) created a typology of Samoan adzes. Using information from Buck (1930), Green and Davidson (1969) adapted a classification that relates only to Samoan adzes from artifacts in Savai'i. In their study, they indicate there was insufficient information about the names for adzes and their function to serve as a basis for their classification (see Buck 1930). Their classification was a statistically-oriented study of the measurements of length, width, and thickness. The interrelationships of complete adzes suggested that Samoan adzes conform to a general Polynesian pattern (Green and Davidson 1969). While Green and Davidson's typology is primarily based on formal criteria, it gives way to useful results in the analysis of persistence and change among excavated Samoan adzes. Buck's (1930) classification emphasizes a close analysis of the geometric form of the cross-section, as well as its shape based on the relationship between the width of the back and front of the adze and thickness at that point. It also takes into account the degree of finish, but neglects features like butt modification, lugs, and curvature of the back. Many adze types appear to have their closest relatives among the early adze assemblages from the Maupiti burial site in the Society Islands, and the adzes from the early end of the sequence for the Northern Marquesas (Green and Davidson 1969).

Green (1974) states that beyond adzes there seems to be little in the way of stone tools in Samoa; however, there appear to be three reasons for the limited consideration of basalt flake tools. First, at many sites in Samoa and the central Pacific, lithics are uncommon. Second, there was often the assumption that flakes were not utilized in Samoan technology, so there was no point in carefully examining them. Third, if edge modified flakes were found, there was little to be said about them because they represented expedient tool use. This appears to be a tautological argument as nothing can be said about expedient tools in Samoa because no one has thoroughly examined them. Clark and colleagues (1998) state that this is not the case for Tutuila, in American Samoa, and perhaps for some other islands, but rather, there is a rich and diverse stone tool technology on Tutuila. One major factor contributing to this is the rich lithic resources available on the island (Clark et al. 1998).

Settlement Patterns

During the late 1980s and early 1990s, Jeffery Clark and David Herdrich sought to accomplish in American Samoa what Green and Davidson (1969a, 1974) had in Western Samoa; namely, to gain a better understanding of the regional settlement system on Tutuila. Clark and Herdrich carried out an extensive survey of Eastern Tutuila. The primary goal of the Eastern Tutuila Archaeological Project was to retrieve data of prehistoric settlement systems that existed on the island. Specific questions were concerned with how prehistoric populations were distributed over the landscape and how the distribution pattern changed over time. The principal areas of focus were the counties of East Vaifanua and Sa’ole. The Eastern Tutuila investigation added 176 new sites to the site inventory of American Samoa and allowed for a more comprehensive comparison of archaeological data from Western and America Samoa. Differences and similarities between American and Western Samoa were illuminated the topographic constraints, and inland settlements are less extensive on Tutuila than those in Western Samoa. In addition, large dispersed settlements have not yet been documented for Tutuila (Clark and Herdrich 1993).

The survey recorded large fortifications which reflected intensive warfare that occurred perhaps between district alliances and with other islands (Freeman 1983; Meleisea 1987). Resource exploration identified basalt quarries and tool manufacturing sites indicating that these activity sites are more common on Tutuila than elsewhere in Samoa. The presence of large scale quarries and evidence of lithic workshops has singled out Tutuila as an important contributor in the exchange or trade system that reached beyond the archipelago. Additionally, the number of quarries and greater use in flake tools has illuminated the differential emphasis in stone tool use between residents of Tutuila and Western Samoa (Clark and Herdrich 1993).

Geochemical Sourcing

Archaeologists working in Polynesia have been fascinated by the stone tools produced and found in the region, and it has long been understood that the Island of Tutuila was a major source of basalt extraction for the manufacture of these tools (Best et al. 1989; Green and Davidson 1969, 1974; Johnson et al. 2007). Tutuila contains 17 recorded quarries, many with large complexes, fortifications and concentrations of *fo'agas* which are interpreted as evidence for large-scale pre-contact industrial basalt quarrying and manufacture sites (Clark et al. 1997; Leach and Witter 1985). Sir Peter Buck (Te Rangi Hiroa) took a special interest in documenting the many aspects of Samoan material culture, which led him to inquire about the location of the stone quarries on Tutuila. In the settlement of Leone, Buck discovered the massive quarry and workshop of Tataga-matau (Leach and Witter 1987). The quarry's location and importance was known by the elders of the community who said that people came from all areas of the island to obtain basalt from Tataga-matau (Buck 1930; Leach and Witter 1987).

The study of regional exchange and long-distance interaction between island groups initially used more traditional approaches such as linguistics, oral histories, artifacts and architectural styles. Numerous enthnohistorical accounts have been used to determine regular interaction between island groups during the ethnographic period. Nineteenth century missionaries recorded that Tongan trading canoes traveled to Samoa the same time every year (Davidson 1977). Evidence for long distance exchange prior to the ethnographic period includes the movement of fine grained basalt from Tutuila to the Cook islands, Fiji, Tonga, Tokelau, Phoenix and Line archipelagos (Di Piazza and Pearthree 2001; Kirch and Kahn 2007) (Figure 2.2).

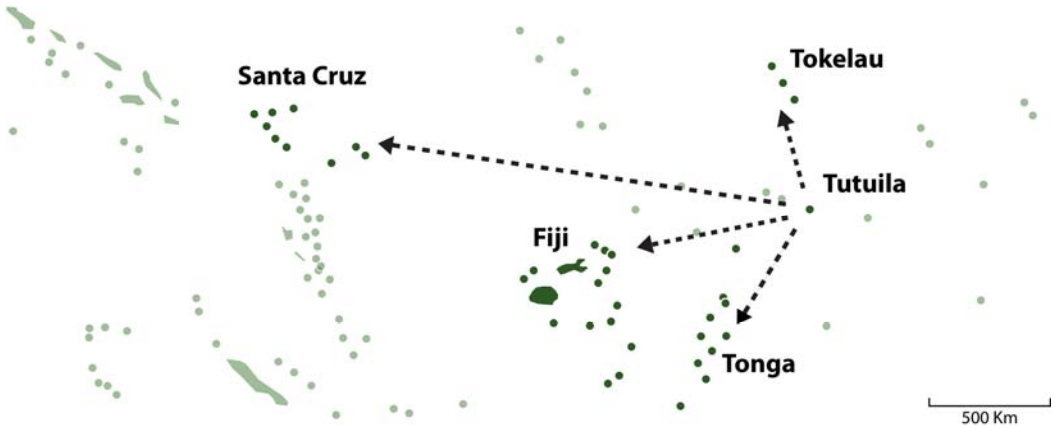

Figure 2.2 Inter-archipelago Tutuilan adze distribution.

Simon Best's preliminary success in the 1980's of integrating chemical characterization and the analysis of basalt stone tools encouraged a new phase of research in Polynesia (Best 1984; Best et al. 1989; Johnson 2005). X-ray fluorescence (XRF) was favored throughout the 90's for four reasons. It is less expensive, less time consuming, less destructive and is more readily available than other methods of chemical characterization (Johnson 2005). Through geochemical analysis, the island origin of Samoan basalts has been determined. Numerous studies have traced Samoan interaction with other groups throughout the Pacific through the characterization of stone tools recovered from those distant island groups (e.g., Best et al. 1992; Weisler 1998; Weisler and Kirch 1996).

Best and colleagues (1992) posit that samples recovered from the Fiji-Polynesia region can be tested for similarities in elemental signatures of those samples recovered from Tataga-matau on Tutuila. Such similarities would create clusters, indicating that the source of the material originated from said quarry. One-hundred and sixty-one archaeological and geological basalt samples from the area bounded by Hawai'i, Pictairn, Easter Island, Tonga, Lau and Samoa were collected and analyzed. The elemental composition of each sample was analyzed using the multivariate statistical methods of average linkage clusters analysis and stepwise discriminant function analysis (SAS version 6.01). The results of the stepwise discriminant analysis, using log10, indicated that the most useful elements in discriminating between sources are CaO, TiO2, Fe3O3, P2O5, MnO, SiO2, MgO, K2O, and Al2O3 (Best et al. 1992). Their data was conveyed graphically using biplots of phosphorous (P2O5) against titanium (logTiO2) or iron (logFe2O3); however, the results did not define Tataga-matau as the dominant quarry of origin for the Polynesian artifacts that were analyzed (Johnson 2005).

Marshall Weisler's (1993a) XRF analysis of material from the Samoan islands of Ta'u and Ofu was the first provenance study to focus exclusively on Samoan source material and artifacts (Johnson 2005). This preliminary examination sought to answer two questions. First, did any of the artifacts originate from Tataga-matau 100 km to the west? and Second, what was the geochemical variation of adze material and unmodified basalt flakes from Manu'a sites? As the non-destructive method had not been used before, each individual source sample was divided and analyzed by two methods, destructive XRF using palletized samples and non-destructive XRF using whole samples. The destructive method analyzes a wider range of elements; thus the results are fully quantitative for most elements and comparable to other data sets. The non-destructive method focuses on elements that are more reliably detected with this procedure; therefore the results are considered semi-quantitative (Weisler 1993a).

Interpretation of results was done through the examination of elemental ratios: Rb/Sr against Y/Sr against Nb/Sr, and through bivariate plots of elements and multivariate statistics. Artifacts and source rocks plotted by ratios of zirconium, strontium and niobium demonstrate that many of the samples plot within the Tataga-matau source envelope, distinguishing between the Manu'a group and Tataga-matau (Weisler 1993a).

For an artifact to be sourced to a Tutuilan quarry, a comprehensive analysis of each known quarry must be completed (Johnson 2005). At the time that Clark and colleagues (1997) conducted their geochemical analyses, more Tutuilan quarries had been recorded, providing a larger sample base for sourcing. The study by Clark and colleagues (1997) is important because it was the first tackle the concept of intra-island variability of quarry sites across Tutuila. While the project goal was not to source particular quarries, they aimed to define variability between different quarry locations in an effort to determine the variability of quarry level provenance on the island (Johnson 2005). Clark and colleagues (1997) collected both archaeological and geological samples from eight quarry locations and interpreted their results by comparing TiO_2, FeO, CaO, K_2O, and P_2O_5. Their results indicate that there are ranges in the elemental composition of basalt rock quarries on Tutuila, and in many instances these ranges overlap, even with quarries from different volcanic series (Clark et al. 1997).

To bridge the gap between the pioneering work that had been done in the past and the work that needs to be accomplished in the future, Johnson (2005) conducted a comprehensive quarry level provenance study to identify source material on Tutuila. The primary focus of his research was the identification of geologic variability of individual Tutulian basalt quarries. It was a material (not artifact) based project utilizing instrumental neutron activation analysis (INAA) of 120 geologic samples from four fine grained basalt quarries (Alega, Aisiapa, Lau'agae and Tataga-matau) . Instrumental neutron activation analysis was chosen over XRF for this project because it is one of the most sensitive and accurate tools for chemical characterization (Johnson et al. 2007; Neff 2000; Weisler and Kirch 1996). The data were normalized using log10 and results were determined by principal component analysis (PCA) and conical discriminant analysis (CDA). The results demonstrate that differentiation displayed in the INAA data illustrates clear separation of sources based on inter-quarry chemical composition.

Using nondestructive energy-dispersive x-ray fluorescence (EDXRF) Weisler and Kirch (1996) sourced Polynesian basalt artifacts. They compared excavated and surface-collected basalt adzes and adze flakes from sites in Samoa (AS-13-1) and the Cook Islands (MAV-44) with source basalt from known prehistoric quarries in these archipelagos. Kirch and Weisler were able to demonstrate the movement of basalt adzes from Tutuila Island to Ofu Island (100 km away) and Magnaia (1600 km away). These results are significant because they demonstrate the movement of objects not only between culturally similar islands but also between those in different islands groups (Weisler and Kirch 1996).

Clark and colleagues (1997) conducted a geochemical analysis on 26 basaltic rock samples from 15 sites on Tutuila. Using XRF at Michigan State University and the XRAL company, the samples were analyzed for four major trace elements. Their data were compared with Tutuila samples reported by Best and colleagues (1992), nine samples from Tataga-matau (Weisler 1993a), and three recent samples from Lau'agae (Kennedy and Moore 1995). Results identified four geologic volcanic regions of Tutuila; only the Leone Volcanic Series was not represented. Nine samples from non-quarry sites were also analyzed. These results revealed that there are ranges in the elemental composition of basaltic-rock quarries on Tutuila, and that these ranges often overlap with quarries in different volcanic series. Therefore, artifact geochemistry would be most beneficial for identifying the island of origin as well as to eliminate unsuitable source possibilities (Clark et al. 1997).

The overlap in elemental ranges and the inability to confidently assign artifacts to specific quarries identified the need for quarry specific geochemical signatures. Tutuilan basalts have been identified on other Pacific islands; however, they are not always confidently traced to an individual quarry (Allen and Johnson 1997; Best et al. 1992; Clark et al. 1997). Focus on artifacts and artifact assignment is one of the factors that may have limited confident quarry-level artifact assignment, as opposed to defining geologic variability within quarry sources. According to Weisler (1993), until the major source of Polynesian adze material has been identified and geochemically understood, associating a particular artifact with a particular quarry cannot be done. A comprehensive analysis for each Tutuilan quarry must be done before a Tutuilan artifact can be associated to its quarry of origin (Johnson et al. 2007).

Johnson (in press, 2009) employed EXRF on pelletized samples to test the ability of this sourcing method to differentiate intra-island procurement sites and the potential to differentiate between these sites using the elemental concentrations reported.

Additionally, the EDXRF results were compared to the INAA results (Johnson et al. 2007) to evaluate the efficiency of EDXRF for the differentiation of intra-island sites against differentiation achieved through INAA. Comparison of the EDXRF and INAA results was done through biplots and exploratory multivariate statistics. Biplots of the EDXRF concentrations demonstrated clear separation between the sites while maintaining intra-site cohesion of samples with little or no site overlap. While EDXRF displays clear separation between the four sites (Alega, Asiapa, Lau'agae and Tataga-matau) and intra-site cohesion, the INAA results display a similar trend in differentiation for the same samples but less intra-site cohesion and inter-site separation (Johnson in press, 2009).

A principal component analysis (PCA) was used to explore possible groups beyond bivariate relationships and canonical discriminant analysis (CDA) was used to verify both the bivariate and multivariate results. Over 71% of the total variability was explained by the first two PCA scores for the EDXRF results, while 67% of the variability in INAA data was explained by the first two PCA scores. The biplots for the PCA scores for the EDXRF and INAA display dissimilar levels of inter-site differentiation and intra-site cohesion. High intra-group cohesion and clear separation of each site is demonstrated through the plot of CDA functions for EDXRF. The INAA data display differentiation of each group but display some overlap between the geographically isolated Lau'agae and Tataga-matau groups. Johnson (in press 2009) concludes that the EDXRF data display greater group membership of clusters. When compared to INAA, EDXRF provides a similar or higher level of differentiation between sites through plots of compositional variability and multivariate statistical analysis (Johnson in press, 2009).

Elemental signatures of volcanic glass artifacts and basalt tools from Aganoa were derived by Welch (2008) and Crews (2008). Welch (2008) employed EDXRF to excite each element in his study. This method exercised three conditions, mid Za, mid Zc, and Low Za. Artifact groupings were then derived from bivariate scatterplots of normalized concentrations (Welch 2008). Welch's (2008) data illustrate that two volcanic glass provisioning localities were utilized at Aganoa; however, these localities have yet to be located on the island.

Using INAA, Crews (2008) compared basalt artifacts from Aganoa to the baseline established by Johnson (2005). After the samples were processed, a K-means cluster analysis was conducted on the normalized data. When clusters were derived, the Aganoa data were combined with Johnson's (2005) and a principal components analysis (PCA) and conical discriminant analysis (CDA) was conducted. The INAA data from Aganoa suggest that there were four, possibly five, sources utilized. Aganoa samples match with Lau'agae and Tataga-matau with a high degree of confidence throughout all of the cultural layers (Crews 2008). The other three groups within the Aganoa data do not match the information provided by Johnson (2005).

Winterhoff (2007) analyzed basalt artifacts from 17 sites on Tutuila Island, and from those sites 75 basalt samples were chemically characterized to identify material provisioning locations using Wave-Dispersive X-Ray Florescence (WDXRF). Winterhoff's (2007) samples are derived from the Taputapu volcanics, specifically from

Tataga-matau, Malaeloa and the Maloata Valley. In addition to artifact samples, geological sampling was conducted to asses the diversity of possible basalt sources within the Malaeloa and Maloata valleys. To examine the geochemical variability between the three locations, a matrix plot was utilized to analyze the oxides recorded from the waste flakes and geologic samples collected. Major elemental oxides (SiO_2, TiO_2, MnO, K_2O, CaO and P_2O_5) present confident results in dividing the three valleys into distinct elemental groupings. Initial scatterplots differentiated five basalt sources, and from these two additional plots were created. The first shows adzes recovered within the Samoan archipelago and the second plots those that are found outside Samoa. Intra-valley distribution is demonstrated by nine Malaeloa adzes connected to the Malaeloa source 2 group, and one adze from the Maloata valley that matched the Maloata source. Intra-island distribution is demonstrated by five adzes from Tataga-matau that were recovered from three separate locations. Lastly, there are two examples of inter-island distribution from two western Tutuila adzes found in Upolu.

Samoan Resource Provisioning Locations

Research on Polynesian adze provisioning locations and lithic work shops during the 1980s resulted in the discovery of new quarry sites (Leach 1993). One quarry in particular is Tataga-matau, inland of Leone village on the island of Tutuila. It is known for its high quality basalt and is speculated to be the largest basalt quarry in the central Pacific (Clark et al. 1997). Fine grained Samoan basalt found in datable contexts on islands beyond the archipelago yield dates that are consistent with the period that

Tataga-matau was in use. For example, by 900 BP Tutuilan adzes were incorporated into the archaeological record in Fiji, in the Cook Islands by 600 BP and in Tonga by 300 BP (Best et al. 1992; Clark et al. 1997). Dates from the Tataga-matau quarry complex indicate that major production episodes, involving well organized earth moving on a large scale to create mounds and trenches, happened from 600 to 400 BP. According to Green and Davidson (1969), tool manufacture focused on the production of large Samoan Type I, VI and XI adzes. Prior to the increased interest in geochemical characterization, it was suggested that Tataga-matau was an exporting quarry (Leach 1993). The quarry is an enormous complex with a range of features such as basalt extraction areas, flaking areas, terraces, star mounds, earthen platforms, stone walls and defensive structures (Clark et al. 1997). The site boundaries are identified by signs of tool manufacture, which occur on 21 ha of ridge top and hillside within an overall area of 46 ha (Leach 1993).

In addition to Tataga-matau, six other basalt extrapolation locations have been identified by Clark and colleagues (1997): Fagasa, Alega, Faga'itua, Asiapa, Le'aeno and Lau'agae. The second largest source location on Tutuila is Fagasa, which contains two quarry areas, workshops, multiple terraces with steep pits and stone walls. It is clear that basalt was extracted from these locations and exchanged on an inter-island basis, however, further geochemical research may one day enable archaeologists to identify exchange spheres within the archipelago and the island of Tutuila. To determine how Samoa was provisioning other islands, the archaeological community must understand how Samoa was provisioning itself; the control and distribution of resources figure prominently into understanding the development of a complex society.

Summary

The above pages summarized much of what is known about the last 3,000 years of history in Western Polynesia and Samoa, and it highlights the archaeological research that has contributed to our understanding of the Samoan cultural chronology. While archaeologists are continually expanding upon the methods available to them, there is still much to be done in future studies. The discussion of Samoan cultural history and past archaeological work is important to this study as it has provided that foundation for our current knowledge of Samoan prehistory. Therefore this thesis will add to the work done and potentially fill some of the gaps in the anthropological literature of this area. The next chapter identifies the type of craft production the people of Fatumafuti are hypothesized to have been engaged in between 1230-520 BP.

CHAPTER III

LITHIC TECHNOLOGICAL ORGANIZATION

AND

LITHIC CRAFT PRODUCTION

> Individuals are actively involved in the daily creation and recreation, production and reproduction, of the world in which they live. Thus, they employ tools and techniques, work in social labor arrangements, make consumer products, and adapt their behavior to the material conditions they encounter in their natural and artificial environment, individuals realize possibilities for human existence.
>
> L. Winner (1986:14-15)

LITHIC TECHNOLOGICAL ORGANIZATION

Lithic technological organization is a fundamental concept in my analysis of the Fatumafuti lithic assemblage. The study of stone tools and waste flakes aims to explain how this form of technology was organized, so that understanding of how a culture coped with its socioeconomic and environmental constraints can be gained. Lithic debitage is often the most abundant cultural material that remains at an archaeological site, yet in many cases waste flakes have been commonly overlooked and are not systematically collected in Samoa. The analysis of debitage can be informative of the technological strategies used and the reduction stage represented at a site because, unlike the tools that are produced, debitage is not removed from the production area. This section examines the role and organization of lithic technology, the concept of chaîne opératoire and the reduction sequence of stone tools in Polynesia. The study of lithic technology is one method used to understand a broader set of social, political, economic or environmental questions. Therefore, understanding its role and organization enables us to learn how prehistoric cultures coped with their social and physical environment (Kelly 1988). Mobile and sedentary groups organize their lithic technology differently according to their needs, along with the production of expedient tools, formal tools, or those technologies involved in some type of craft specialization.

The concept of chaîne opératoire is a method used in this analysis to identify the stage of reduction at Fatumafuti; therefore, it is important to understand how it relates to the study of lithic technology. Dividing a reduction sequence into stages assumes that different types of behavior occurred at different stages of manufacture, and this is recorded in attributes on the lithic remains (Kahn 1996). In my debitage analysis, I use the frequency of specific attributes to identify which stage in the reduction chain best explains my data. Identifying the stage of reduction will allow me to expound on the behaviors that occurred at the site. Through previous analyses, experimental and archaeological, the importance of certain attributes has been weighed in terms of their relation to the chaîne opératoire (Magne 1989; Morrow 1997; Stahle and Dunn 1982).

A Story of Debitage Analysis and the Reduction Sequence

McAnany's (1989) study of the Pulltrouser lithics is an excellent example of a debitage analysis that utilized informative attributes to determine the nature of reduction and the resulting socioeconomic behaviors at a site. Her work is discussed here as the methods used in her study are the inspirational foundation for my analysis of the Fatumafuti lithics.

Colha is a Mayan settlement located in northern Belize, and it is said to be the most visible example of prehistoric lithic craft specialization in the New World (Shafer and Hester 1991). Shafer and Hester (1991) argue that Colha demonstrates a model of restricted access and control of chert resources. McAnany (1989) investigated the production intensity and scale of distribution centered on Colha through the analysis of lithic material at the Pulltrouser site, 31 km north of Colha. Lithics at Pulltrouser were characterized as highly standardized formal tools with low local material availability. To test the context of lithic procurement at Pulltrouser (i.e., direct or indirect) technological attributes of lithic debitage recovered from residential units surrounding Pulltrouser swamp were analyzed. McAnany (1989) expected that if Colha chert was procured directly in raw form and transported in a partially reduced state to Pulltrouser swamp, the debitage at Pulltrouser would contain some initial lithic reduction and tool production debris (test nodules, prepared cores, preforms and large flakes with simple attribute complexes). On the other hand, if there was little to no direct procurement, but indirect procurement in the form of finished tools, lithic debris would be restricted to edge refurbishing and recycling flakes (McAnany 1989).

Technological attributes of Colha chert flakes and local chalcedony flakes recovered from Pulltrouser were analyzed. It is known that the reduction of local chalcedony nodules occurred at Pulltrouser; therefore if initial reduction of Colha chert occurred there as well, Colha chert flakes should resemble the chalcedony ones. Even though Colha chert nodules and finished tools are larger than chalcedony pieces, McAnany found a distinct difference of length, thickness and size among Colha chert flakes.

Colha flakes are smaller than the chalcedony flakes, suggesting that bifacial thinning flakes were uncommon at Pulltrouser. The average values for platform and dorsal scars were higher for Colha chert than for the chalcedony. High platform and dorsal scar counts are indicative of late stage reduction, and together with the flake size, McAnany argued that tool refurbishing, and not production, occurred at Pulltrouser (McAnany 1989).

An examination of cortex indicated that 94% of Colha chert lacked cortex, while only half of the chalcedony flakes completely lacked cortex. Of the flakes that retain over 50% of cortex on the dorsal surface, Colha chert is represented by 1% while chalcedony contains 11%. Therefore, cortex analysis further supported McAnany's (1989) findings. Platform characteristics were used as an indicator of reduction. McAnany (1989) examined cortical, crushed, bifacial, simple and multifaceted platforms. Thirty-nine percent of Colha flakes have bifacial platforms, indicative of tool thinning or resharpening, compared to the chalcedony flakes of which only 6% contained bifacial platforms. Seventy-six percent of the chalcedony flakes contained simple platforms while 51% of the chert flakes had simple platforms. Additionally, a comparison of chert and chalcedony cores indicated that there was a high frequency of chalcedony cores and a low frequency of chalcedony formal tools (McAnany 1989).

Through her analysis of lithic flake material, McAnany (1989) concluded that both direct procurement of chalcedony nodules and indirect procurement of finished Colha chert tools existed at Pulltrouser. This settlement acted as a consumer within a larger stone tool exchange network. This study is important in light of my research because it provides a useful model for conducting a debitage analysis to answer larger social, political and economic questions. The goal of my thesis is to examine the frequency of flake attributes as indicators of reduction, and to determine the capacity in which basalt materials were introduced to the Fatumafuti site (cobble/tabular form, partially reduced, or tool form). This will help me to expand on the role that Fatumafuti played in the increasing complexity characteristic of the Traditional Samoa period, and how these behaviors (at Fatumafuti) differed from that of Tutuila's Lapita age inhabitants.

Technological Organization

Lithic technology is one of many strategies devised for increasing access to resources when and where they are required, as well as reducing the risk involved. Therefore, stone tools are not a means to an end, but are one of a number of alternative behavioral approaches used by prehistoric cultures to manage their social and physical challenges (Torrence 1989a). Adopting an organizational approach to technology is beneficial because it provides a framework for assessing variability within and among stone tool assemblages (Carr 1994). The goal of this approach is to determine how technological changes reflect behavioral changes in prehistoric societies (Kelly 1988). Technological organization is defined by Nelson (1991:57) as "the study of the selection and integration of strategies for making, using, transporting and discarding tools and the materials needed for their manufacture and maintenance. Studies of the organization of technology consider economic and social variables that influence those strategies." Kelly (1988) elaborates by stating that it is the spatial-temporal juxtaposition of the manufacture of different tools within a cultural system. Organization of technological behavior and assemblage structure are two approaches used to examine the mechanisms of risk for the prevention of the loss of resources. Organization requires the management of time and energy for the various components involved, such as procurement, manufacture, use and repair. Assemblage structure compromises composition in terms of functional tools types, the diversity of tool types and the complexity of individual tools (Torrence 1989).

Chaîne Opératoire and the Adze Reduction Sequence

This study explores five questions identified in Chapter I. The first question pertains to the stage of reduction at Fatumafuti. The presence or absence of specific flake attributes will enable the identification of certain behaviors found in the reduction sequence, such as tool production, use or curation. These activities are important to identify because they provide information on the type of site Fatumafuti represents. For instance, the area could have been used primarily as a tool production site, a village site where tools happened to be manufactured, an agricultural site or a place that people were passing through where they needed to make or rework tools.

According to Sellet (1993), Perles (1987) defines chaîne opératoire as a succession of mental operations and technical gestures to satisfy a need according to a preexisting project. Sellet (1993) elaborates that it is a chronological segment of the manufacture and maintenance of a tool into a technical system. The goal is to describe and understand all cultural transforms in which the raw material undergoes. The name, chaîne opératoire, suggests there is a string of actions and visible outcomes that need to be identified. The beginning of this chain begins with raw material procurement and ends with the discard of the finished product post use. According to Sellet (1993), Geneste (1989) identifies the organization of this chain on a theoretical, archaeological or experimental basis through a definition of the chronological steps of tool manufacture. Each step is characterized by one or a series of end-products, such as waste flakes or debris bearing technical criteria that identifies a specific phase in the process.

Prior to the work of those such as Frison (1968), stone tools were once thought to represent that object in a static state. That is, the artifact represented the end product desired by the manufacturer and did not at any point in the tool's life function as a different tool. Through the work of many (i.e., Dibble 1995; Frison 1968), artifacts found in the archaeological record reflect only the last stage in a long continuous chain of reworking and reduction. Tools can have many use lives, and depending on a number of external factors one tool type can be made into another. The subtractive process of knapping erases most evidence of a tool's past life. The chaîne opératoire sequence is regarded as a dynamic approach because it does not consider artifacts as static entities, but considers the technological system behind the tool and takes into account the life trajectories of tools. According to Pelegrin (1985) chaîne opératoire reveals the dynamic of a specific technical system and the role it plays within the broader technology of that group. Importantly, each chain constitutes the whole technical system (Sellet 1993).

One of the most fundamental goals of a technological analysis is to divide the lithic reduction sequence into stages. While some researchers are critical of this (Sullivan and

Rozen 1985), many would agree that analyzing the continuous track of a reduction sequence as discretely delineated stages helps to understand the assemblage formation process (Kahn 1996). Throughout Oceania, the most widely used stone tool was the adze; however, flake tools are frequently found on Tutuila. Here, basalt exploitation sites were common. Debris left at these sites suggests that material was extracted and taken elsewhere for further shaping and grinding (Clark et al. 1997). Leach and Witter (1987) constructed a reduction sequence from the lithic material found at the Tataga-matau quarry. Large flakes were removed from an objective piece and used as blanks, rather than reducing the entire core itself. These flakes tended to be broad and wider than they were long, with thick platforms. Depending on the limitations imposed by the blank, certain decisions were made regarding the bevel, butt and initial flaking platform. The blank type was influenced by the source of stone and the form that the parent material occurred, which in turn was an important determinant of the preform shape (Leach and Witter 1987). Cortex was often removed during the early stages of reduction as it represents a weakened portion of the core (Winterhoff 2007), and so that it could be easily transported to another location for further reduction. The reduction sequence was based on three main blank types (Leach and Witter 1987). Type A blanks were small flakes that are reduced to a Type III adze. Type B blanks were large flakes with thick bulbs of percussion that are reduced to either Type I, II, IV, V, or X adzes. Type C blanks were long with triangular cross sections and were manufactured into Type VI, VII and VIII adzes (Leach and Witter 1987; Winterhoff 2007).

Blanks underwent four main manufacturing stages (see Figure 3.1). Bifacial reduction is seen as the removal of flakes on the preform edge to create an alternating ridge (Winterhoff 2007). Bimarginal reduction (Figure 3.1b) was done to narrow the sides and achieve the greatest loss of mass. Bidirectional reduction required thinning, shaping and trimming (Figure 3.1c) to attain the greatest amount of cross-sectional symmetry. Lastly, bevel flaking was performed on the same side as the surface used as the platform for the first stage of reduction (Figure 3.1d) (Leach and Witter 1990). In the last stage of production the adze was ground and polished on *foaga*, which is a rock with a depression created through tool polishing. A polish was achieved by adding sand and water while the adze was ground against the rock slab (Winterhoff 2007). This was a time consuming process but it helped dull edges to add strength to the tool.

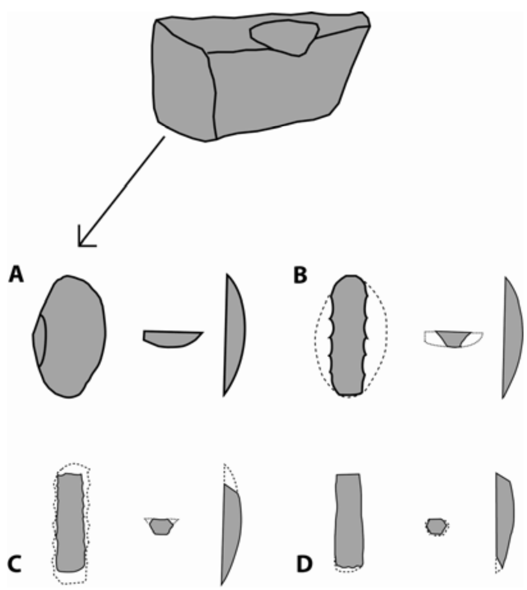

Figure 3.1 Adze reduction sequence (adapted from Leach and Witter 1987).

The Analysis of Waste Flake Material

A common objective for conducting a debitage analysis is to assess the amount of variability within the assemblage. Archaeologists recognize several overarching dimensions of variability (Schiffer 1992). Formal variability relates to an artifact's observable attributes (Schiffer 1992). Specifically, in terms of Fatumafuti, these include the chemical composition, length, width, weight, platform, termination, dorsal scars, cortex and polish. Spatial variability is the artifacts location in relation features or to activity areas, such as house structures, fire hearths or burials. Frequency pertains to the number occurrences of a particular artifact type in a given area. The frequency of particular attributes, for instance cortex or polish, will help to identify the type of segment that existed in the reduction chain at the site. The last dimension is relational variability, which relates to the items associated with the artifacts in question (Schiffer 1992). While my study is concerned with all aspects of variability, formal and frequency variability are considered most central to the debitage analysis. Variation within and between flakes are due to a combination of mechanical factors, such as direction or rate of applied force and distance from platform edge to the applied force, all create variation in lithic debris (Shott 1995). Assemblage variation is important because it can imply that different behaviors are taking place. Such behaviors may be due to the style of reduction employed by the producer such as the angle of percussion or the type of hammer being used. It can also imply that a change in reduction occurred to achieve a different technological outcome, such as the production of a scraper opposed to an adze, or resharpening a tool as opposed to producing a tool.

There has been much debate over the utility of debitage analyses and whether such studies are comparable to others; however, lithic waste material is far more abundant than stone tools and is not removed from the site as finished tools are (Shott 1995). For instance, according to Andrefsky (2005) striking platform angle and the number of facets in debitage attribute analyses are often not used because the process is time consuming and the results have been proven difficult to replicate. There has been little agreement on how to conduct a debitage analysis, and as a result this has created an analytical free for all (Morrow 1997). Therefore, the comparability and or replicability of debitage analyses have been difficult. Debitage from the manufacture and maintenance of stone tools reveals a remarkably robust pattern that manifests itself at many different levels in different ways. Past archaeological investigations in Polynesia have paid minimal attention to the analysis and interpretation of lithic debitage. This lack of attention is related to the belief that little can be gained from a complete assemblage analysis that includes waste flakes because assemblages are often dominated by undifferentiated and non-formalized implements. The research that has been conducted is focused on basalt artifacts that appear to be related to adze manufacture; therefore, the majority of studies have been associated with adze quarries or adze working floors (Kahn 1996). Such attention may be attributed to the fact that these sites often offer localized and spatially restricted information, which allow for aspects of the complete production system to be assessed (Costin 1991:2).

Two general methods are used when conducting a debitage analysis: individual flake analysis and flake aggregate analysis. Individual flake analysis is the more traditional procedure where key attributes are examined and measured (Ahler 1989). Details on the waste flake are analyzed in terms of its shape, platform, and facial characteristics, all of which can provide an imprint of discrete behaviors that were applied to the objective piece. In theory, this method allows for a straight forward separation of knapping behaviors that occurred in a single spatial context. The idea that each flake contains important information on discrete behavioral episodes underlies typological flake categories such as shatter, bifacial thinning flakes, bipolar reduction flakes, bevel flakes or rejuvenation flakes (Ahler 1989). In flake aggregate analysis, the focus is shifted from the individual flake to the characteristics of the complete group of flakes. General size distribution is a characteristic that is frequently studied; this method is particularly useful when confronted with a large sample size and when a quick and efficient analysis is required (Ahler 1989).

As mentioned above, chaîne opératoire seeks to recognize identifiable stages in the technological sequence. Shott (1995) states that the greatest amount of variation that occurs within a flake are the platform, dorsal scar count, dorsal cortex cover and weight. The presence of a remnant striking platform is the basic criteria for assessing whether other variables can be analyzed (Magne 1989). Platform width is useful in estimating where flakes occur in the reduction sequence. Late stage flakes should be small with small striking platforms. Additionally, platform scars are used to estimate the degree of reduction as more scars are expected on platforms at late stages due to platform preparation for better control of flake removals (Magne and Pokotylo 1981) while fewer scars or platforms with flat or cortical surfaces are expected at early reduction stages. At some point the flake becomes so small that this value decreases (Magne and Pokotylo 1981).

Dorsal scar count is used to estimate the degree of reduction as flakes removed late in the sequence are expected to have more scars on their dorsal surface due to previous flake removals. Early stage adze production tends to produce a low to moderate amount (10-30%) of debitage with three or more dorsal scars, while the majority of debitage has two or fewer dorsal scars (Kahn 1996). Therefore, I will compare the percentage of flakes with two or less dorsal scars with those that have three or more to help identify the stage of reduction at Fatumafuti. According to Kahn (1996), assemblages that represent a full range of adze production should be dominated by early stage flakes containing two or fewer dorsal scars but with a higher percentage of flakes with three or more scars (15.5-18%). Like striking platforms, there is a point at which the flake becomes so small that this value decreases (Magne and Pokotylo 1981). Dorsal scaring can be used in tandem with platform type or the presence/absence of cortex to evaluate the stage of reduction. In my analysis, I use the presence of simple verse complex attributes to assess the level of reduction. Simple attributes are simple platforms and two or less dorsal scars while complex attributes are multifaceted (complex) platforms and three or more dorsal scars.

Magne and Pokotylo (1981) state that cortex is an important attribute as it should decrease sharply following the initial reduction stages (Magne 1989). Information derived from adze quarries on Tutuila indicates that this attribute should be used with caution as a large majority of decortification flakes were left at the source location during material extraction. Other attributes such as weight (Magne and Pokotylo 1981) are considered important variables and should be recorded because they relate to the entire mass of the assemblage (Magne 1989). Stahle and Dunn (1982) suggest that early stage flakes will weigh more than late stage flakes; the same reasoning is applied to size, as some like to use this variable to distinguish separate stages of reduction. A problem with this is there is a large amount of small flakes produced at all stages of reduction (Magne 1989).

Clark and Herdrich (1988) identify a number of attributes characteristic of waste debris found on the island of Tutuila. Primary flakes are those that contain cortex on the entire dorsal surface of the flake while secondary flakes have cortex on part of the dorsal surface. Both of these categories represent early stages in the tool manufacturing process. A relatively small percentage of these flakes indicate that the initial shaping of the objective piece did not occur at the site particular site, or that the original material package was not from a weathered out crop (Clark and Herdrich 1988).

In the absence of polish, it is difficult to determine if an object has been worked. In some cases, the presence of striking platforms and small bulbs on flakes that are removed from the corner juncture of quadrangular shape strongly suggests either finished work or the reworking of a tool. Clark and Herdrich’s (1988) investigation identified four factors considered to be informative regarding activities at residential sites: 1) small flakes, 2) the low occurrence of cortical flakes, 3) the occurrence of polished flakes, and 4) flakes with dorsal-scar patterns that suggest detachment from larger tools. All of these factors indicate the reworking of broken or damaged tools.

The predominance of very small flakes with multiple dorsal scars and flakes with polish indicate that a majority of the debitage was created by reworking adzes rather than chipping during tool use (Clark and Herdrich 1988). Green (1974) concludes that in Western Samoa the majority of flakes was the product of adze manufacturing and reworking rather than flake tool production. However, there are far more flake tools recovered in Eastern Tutuila that anywhere else in the Samoan archipelago (Clark and Herdrich 1988).

LITHIC CRAFT PRODUCTION

The goal of this section is to define the type of lithic craft production that the people of Fatumafuti were engaged in between 1050-520 B.P. Examining the nature of craft production in prehistoric societies is important because it can convey the degree of social stratification and economic complexity that existed.

A model adapted from Arnold (1984) is used as a proxy to explore whether lithic craft specialization occurred at Fatumafuti. This model consists of five indicators, the first four of which are examined in this study: 1) a high relative absolute volume of stone tool production methods; 2) a certain degree of standardization (i.e., consistency) in tool production methods; 3) repeated intensive use of well defined activity areas (i.e., craft workshops); 4) evidence for some degree of control over critical stone resources; and 5) the presence of specialist paraphernalia with certain burials. The evidence from the first four indicators is viewed collectively to define the nature of lithic craft production at Fatumafuti. The fifth indicator is not addressed here because there was not mention of specialist paraphernalia in the site report (Cleghorn et al. 2005). Recent work conducted by E. Quent Winterhoff (2007) contributes heavily to the study of lithic craft production at Fatumafuti, as our ideas and research overlap in several areas. The following pages discuss many aspects of Winterhoff's (2007) work, as well as social stratification in kinship societies, craft technology, craft production and a subset of production-specialization.

Social Stratification in Kin Based Societies

The role of social stratification in Samoa is important for our understanding of how strategic resources and craft production are organized and controlled. The study of craft production aims to expand upon broader topics within a culture's history. In Samoa and other stratified societies, this analysis helps to understand emergent complexity and cultural transformations that occurred from the point of colonization (Lapita period) up through European contact. This is important in the analysis of the Fatumafuti lithic assemblage as this site plays a role in the transformation of Tutuila from an Ancestral Polynesian society to a Samoan chiefdom.

The criteria for estimating the degree of stratification in a kin based society is said to be divided into the categories of structural and functional (Sahlins 1958). Structural requirements pertain to the degree of status differentiation while functional requirements are the degree to which rank confers privilege (Sahlins 1958). Functional requirements are further divided into economic, sociopolitical and ceremonial categories, and to a certain extent these are all interrelated (Sahlins 1958). The derivation of power, privilege and prestige are a functional aspect of a stratified society as these are generated primarily through the distribution of goods.

In the bias of social order, rights to control returns are concomitant with rights to use production resources. This connection between the material flow of goods and social relations is reciprocal (Sahlins 1965). Reciprocity is the joint movement of goods between two parties, while redistribution is a centralized movement, where the collection of goods from community members is then divided and distributed within the community (Sahlins 1965) (Figure 3.2).

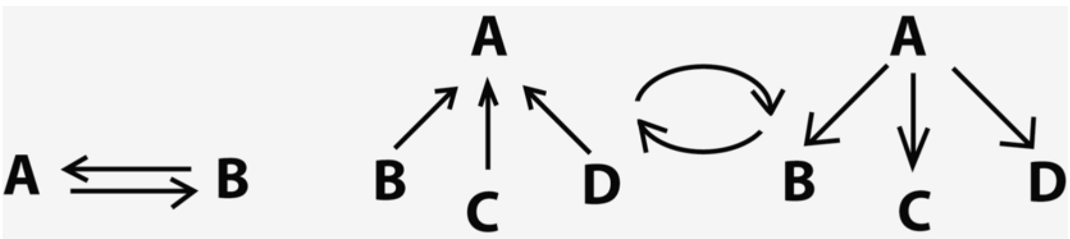

Figure 3.2 Reciprocity and redistribution (adapted from Sahlins 1965).

Pooling and reciprocity can occur in the same social contexts. Pooling is the collective social action *within* a group, whereas reciprocity is a socially oriented material transaction *between* two parties (Sahlins 1965). Therefore, pooling is the complement of social unity (centricity) and reciprocity is a social duality (symmetry). These concepts are significant because the logistic function of redistribution is to sustain the community while at the same time it is a ritual of communion and subordination to a central authority. Redistribution nourishes the corporate structure itself (Sahlins 1965). Thus in Samoa, chiefly pooling generates not only the essence of unity but it codifies the structure, laying down the centralized organization of social order and action (Sahlins

1965). The distributive functions of chiefs are viewed as the origin of their centralized political power (Thurnwald 1932), as an existing economic imbalance presents an opportunity for the application of generosity, of generalized reciprocity and as a starting mechanism of rank and leadership (Sahlins 1965). In many prehistoric societies, the chief was the center of the tribal economy and was responsible for the collection and redistribution of goods among the community. A chief's position in the community was complex; yet this title retained prestige and an expansive range of powers (Sahlins 1958).

According to Sahlins (1958), the degree of stratification is directly related to the surplus output of food producers. An increase in scope, frequency and complexity of distribution roughly translates to increasing status differentiation between distributors and producers. The entire political order is sustained by a pivotal flow of goods up and down the social hierarchy (Sahlins 1965). The powers of high ranking individuals extend to decision making processes regarding the utilization of strategic resources.

In Polynesia, land tenure can be characterized as a stewardship where plots of land, irrigation canals, and areas of the ocean are controlled by corporate village estates (*fono*). Generally, each small kin group (*aiga*) is made up of a few households and functions as an independent property unit, and the kindred head acts as the highest authority within this unit. Within this group, all people have customary rights of use, but the group head (or titled person) has the prerogative of administering how the land will be utilized. For example, the historic nature of Samoan society indicates that the *aiga* has control over the resources within their property, and the chief's role as the central distributive agent demands that his powers spread onto other aspects of the economy (Salhins 1958).

Chiefly redistribution is a centralized, formal organization of kinship-rank reciprocities and is an extensive social integration of the dues and obligations of leadership (Sahlins 1965). Kinship reciprocity is viewed in terms of a closeness or distance of relatedness, where close kinship will operate under a *generalized reciprocity*, referring to interactions that are putatively altruistic (Sahlins 1965). Both rank difference and kinship distance suppose an economic relation, where an individual's place in the vertical rank or his/her horizontal distance in kinship will affect the form of transaction that takes place (Sahlins 1965). According to Sahlins (1965) the chief's role in the organization of kinship-rank reciprocities is often viewed as a paternal metaphor. Observed as a family unit, the chief is the father and the group is his children, and the economic dealings between them cannot help but to be affected (Sahlins 1965).

As I have discussed, chiefly powers extend to the collection and distribution of strategic resources within the chief's property unit, in exchange for other goods and services. Individuals in the *fono* and/or *aiga* will have access to lithic resources within their property boundaries; however, the chief ultimately has full authority over them. Overlapping stewardship is where chiefs are stewards over a number of separate tracts, each with its own manager. This form of stewardship is considered to be a more stratified pattern due to the differentiation of status involved (Salhins 1958).

It is apparent that the distinction between producers and distributors corresponds to the status positions of those with titles, or chiefs, and nonchiefs. Historic Samoa was stratified into two status levels, those with titles (*matai*) and those without. There were various ranks within the titled level; however, there are two types in each level. Chiefs (*alii*) and talking chiefs (*tulafale*) were found on all grades within the titled level but were not ranked relative to each other. Those with higher or lesser titles were often determined by status. Individuals with higher titles were involved in district and other large governmental units while lesser titles functioned in village life. People involved in crafts were respected individuals; however, they did not form a separate status level as crafts were open to titled and untitled individuals (Sahlins 1958).

Lithic Craft Production and Specialization

In Samoa, a difference exists between priests and craftsmen, each of which receives a special role and a special honor and the higher the craft, the higher the honor. A *tufuga* is a craftsman, or specialist, in Samoan culture (Tcherkezoff 2000). Literary evidence identifying the emergence of craft guilds has not been located at this point. However, ethnographic and historical accounts (Buck 1930; Goldman 1970; Kramer 1902; Stair 1897) speak of craftsmen, guilds and the activities they were involved in at the time of European contact; therefore, it makes sense to attribute the emergence of craft guilds with political centralization, the development of socioeconomic complexity and the intensification of lithic craft production during the Recent period (1000-250 BP). Samoan crafts have been compared to European guilds as they are similar in their organization. Principle Samoan crafts have corporate continuity, rules and regulations and a hierarchy of masters and apprentices (Goldman 1970). Stair (1897:142) demonstrates the diversity of specialized skills in which he lists the following: house builder, canoe builder, small canoe builder, wooden bowl maker, paddle maker, fish-bait maker, sail maker, drum maker, preparer of turmeric, prepared of lampblack, club maker, spear maker, split bamboo fishing-pot maker, lobster-pot maker, barber, tattooer, maker of tattoo instruments, fish-hook maker, fishing-net maker, stone hatchet maker, net maker, mat weaver (for wearing), mat maker (for the house), siapo maker, arrowroot maker, fan maker, basket weaver, ornamental screen maker, and plaiter of sennit. Therefore, specialization was present in Samoan craft production, and craft producers were afforded varying degrees of honor and respect depending on their trade.

Unlike the Tongan system, the intent of Samoan crafts was to emphasize the honor of the special and the unique (Goldman 1970). Therefore, a commoner in Samoa, by genealogical standards, can become a special and highly honored individual (Goldman 1970). Winterhoff (2007) suggests that basalt tools were used as political wealth in Samoa. They were specialized tools produced by a formalized carpenter guild and were manufactured within a politicized geography (Winterhoff 2007). The evidence of guilds and craftsmen demonstrates that craft specialization did in fact exist in Samoa. My research seeks to understand if specialization existed at Fatumafuti during the transition from the Aceramic to the Monument Building period. This information will further our knowledge of the degree of socio-economic complexity on Tutuila at that time so that we may document the cultural transition from the Lapita period through the Monument Building period.

According to Costin (1991) production is the transformation of raw materials into useable objects while specialization is a way to organize this production. Thus, production exists without specialization; however, specialization cannot exist without production. Costin (1986:328) elaborates that specialization is the regular, repeated provision of some commodity or service in exchange for another and that it is permanent and possibly an institutionalized production system where producers depend on extra-household exchange at least in part for their livelihood (Costin 1991).

Specialization does not exist in a single organizational state and is not viewed on a present/absence basis. The varying degrees of specialization pertain to the ratio of producers and consumers. Specialists may be present in a non-competitive economic setting. Therefore, a distinction must be made between a specialist working within an efficient industry geared toward the mass production of goods and the skilled craftsmen found in many other types of economies (Torrence 1986). A product that has a high number of producers compared to consumers is viewed as a low degree of specialization, and *vice versa* (Costin 1991). Another factor of specialization is its differing types. Independent specialists produce goods or services for an unspecified demand that varies according to economic, social, and political conditions, while attached specialists produce goods or services to a patron, either an elite of governing institution, and are contractually bound. These two types of specialists differ in their products, intensity, organization and productivity (Brumfiel and Earle 1987). Independent specialists are motivated by efficiency and security (Brumfiel and Earle 1987) and their existence can be considered a risk avoidance strategy. For instance, specialization is expected to occur when resources are unevenly distributed (Brumfiel and Earle 1987); efficiency during the production of a final product further ensures the security of that individual's livelihood.

Costin (1991) develops four general parameters to define the organization of production. These are *context*, *concentration*, *scale* and *intensity*. The *context* of production considers the nature of control over production and distribution, *concentration* characterizes the geographic organization of production, *scale* describes the composition of the production unit and *intensity* reflects the amount of time producers spend on their craft. Winterhoff (2007) uses these parameters to investigate if lithic technology on Tutuila, during the Traditional Samoa period (2500-100 BP), was organized in the form of nucleated works where larger workshops were aggregated within a single community, producing for unrestricted regional consumption (Costin 1991; Winterhoff 2007). While I do not address these parameters directly in my study, I summarize Winterhoff's (2007) analysis of them to provide valuable information on the nature of production during the Aceramic and Monumental Building period (2500-1000 BP). This work is relevant as it provides archaeological criteria to identify varying degrees of lithic craft production in Samoa. Additionally, it allows me to estimate the extent of specialization and social stratification that existed during the time Fatumafuti was occupied.

Winterhoff's (2007) work focuses on Samoa's political transition from an earlier *ranked* society to a historic stratified *chiefdom*. This work is significant because it systematically examines several aspects of lithic craft production on Tutuila and provides a better understanding of the evolution of Polynesian chiefdoms. Aspects of production examined in his study include manufacturing success, spatial segregation of activities, production specialization, resource control and control of distribution (Winterhoff 2007).

The presence and degree of specialization is explored through Costin's (1991) parameters of production. The *concentration* of production loci relates to territoriality and resource availability. Production can be either nucleated within a specific locale or dispersed throughout the region. Loci density is examined in Tutuila during the Traditional Samoa period by Winterhoff (2007). Results suggest that a dispersed pattern of production sites existed; however, when viewed with an expanded lens at the societal level (Figure 3.3), there is a discernable concentration in Tutuila only (Figure 3.3). Therefore, Winterhoff (2007) concludes that Samoan adze production was exceedingly nucleated on Tutuila during this time.

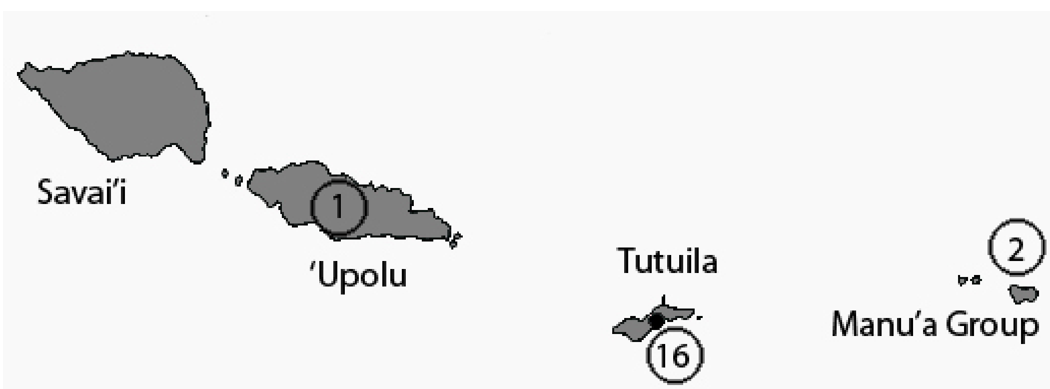

Figure 3.3 Concentration of adze manufacturing locales (adapted from Winterhoff 2007).

To gauge production i*ntensity*, the total weight of debitage recovered is divided by the cubic meter of cultural soil that was removed from the excavation area. Differing densities from 13 separate sites (see Winterhoff 2007 for details) indicate a clear variation among production loci. The *scale* of production measures production organization at the local level; the larger the size of the facility indicates that a larger number of craftsmen worked there. If production occurred at the household level, the number of producers per valley would be larger than at specialized workshops, but the output would relate to local consumption, which would be relatively low. To determine if adzes were produced in association with households or workshops, the overall size and the amount of waste debris produced there needs to be considered. According to Winterhoff (2007) both forms were present on Tutuila during the traditional period.

The next parameter, *control*, relates to attached or independent producers. If attached specialization occurred, these individuals would have worked close to restrictive features such as defensible positions (Figure 3.4). In the case of independent production, adze manufacture was done to supplement horticultural income, and production would occur near the residence (Figure 3.4). These producers would have utilized small interspersed manufacturing sites close to available resources (Winterhoff 2007). Winterhoff (2007) identifies control over production by looking at the spatial relationship of manufacturing sites and their associated features. Both attached and independent production is present during the Traditional period. Of the production loci recorded on Tutuila, Winterhoff (2008) sites Addison and colleagues (1996) and his identification of Fatumafuti as a dispersed household unit lacking restrictive features.

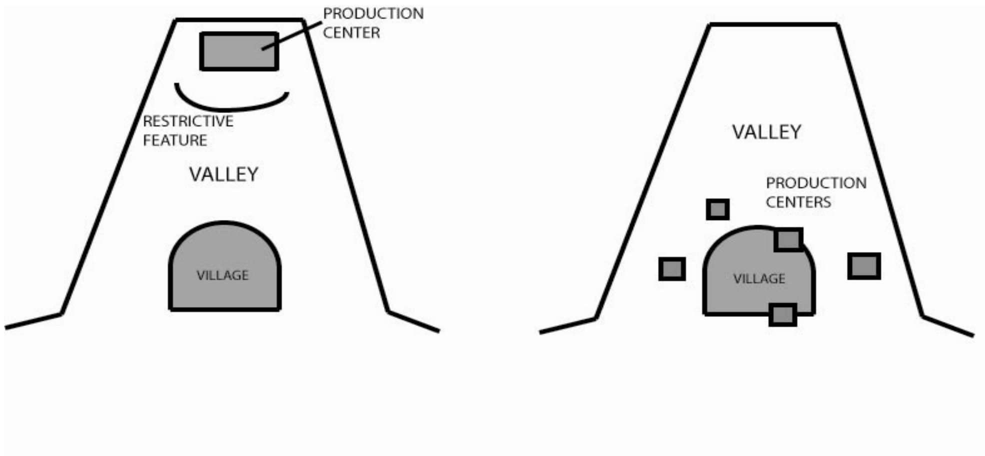

Figure 3.4 Attached and independent production model (adapted from Winterhoff 2007).

Winterhoff's (2007) research suggests that adzes were manufactured and used as utilitarian items for subsistence as well as items of wealth produced by craftsmen guilds. The manufacture of utilitarian adzes was organized in the form of individual production by part-time independent producers at dispersed households for intra-valley distribution. These production centers have been recoded at Auto, Tula, Alega, Fagamalo, Pavai'ai, Afao, Asili, Vaipito and Fatumafuti. On the other hand, the production of guild adzes was organized through nucleated workshops by master craftsmen or elites for a wider distribution for the accumulation of wealth. Attached specialists worked part-time at centralized workshops. This form of production has been identified at Le'aeno, Fagasa, Malaeloa and Maloata (Winterhoff 2007).

LITHIC CRAFT PRODUCTION MODEL

In this research, a model adapted from Arnold (1984) is used here to define the presence of lithic craft specialization at Fatumafuti. Arnold (1984) developed these methods based on her work with Chumash microblade production centers on the Santa Barbara Channel Islands of coastal southern California. This model is well suited for a large scale analysis of multiple resource extrapolation sites, quarries and/or workshops on Tutuila; however, my research at the Fatumafuti site is a smaller scale analysis, so that I employed this model as an example of possible archaeological patterns and criteria that can be examined in the future. I recognize that Fatumafuti lacks some of the archaeological indicators used by Arnold (1984), thus some of the criteria used here are not as robust as I would prefer. However, taken as a whole, the four indicators used in this study adequately examine the nature of craft production at Fatumafuti. Using the four indicators that apply, the existence of economic specialization is explored.

1) A *high relative absolute volume of stone tool production methods* (i.e. presence of debris and waste flakes). The purpose of this indicator is to determine the volume of lithic debris characteristic of a lithic workshop. To gauge how dense or large a concentration of flakes must be to constitute a possible lithic specialization site, I draw on other examples reported from quarries and workshops. For this indicator, Arnold (1984) states that she expects to find a dense concentration of bladelets, incomplete bladelets, blade cores and core preparation debris in an area of no more than a 3 km radius. The concentrations will suggest that the levels of production exceeded the local needs. In her results, Arnold (1984) cites high densities of bladelet production materials at one site in particular. SCrl-306 contains 9,483 bladelets per m^3 over the entire site, and bladelet cores are estimated at about 2,400 per m^3 (Arnold 1984). Two test units at

another Chumash village contained 22,560 and 5,489 bladelet cores per m³ (Arnold 1984).

At Aganoa, Crews (2008) lithic workshop as a possible site function. He notes that while there appears to be a high amount of debitage at the site, it is actually quite small when compared to workshops such as Alega. Additionally, the lack of grinding stones, a presence of rejuvenation flakes and the apparent importation of adzes at Aganoa suggest that this type of conservation and material recycling would not have occurred at a lithic workshop (Crews 2008). This work provides good criteria for the identification on of a lithic workshop.

Excavations at the quarry/workshop of Tataga-matau recovered blanks and preforms from deposits up to 2 m deep (Leach and Witter 1990). John Enright (2001) discusses of the dense scatter of basalt flakes, blanks, preforms, cores and pieces of tools on the 50 acres of once intensely occupied land at Tataga-matau. Enright says that at Tataga-matau and other similar sites on the island, we can begin to reconstruct an ancient manufacturing industry that also speaks to the prehistoric social organizations and political relations (Enright 2001). This is further illustrated by the man-made earth works, platforms, foundations, fortifications and grinding bowls for polishing adzes (*foaga*) excavated from the site (Figure 3.5) (Enright 2001).

Figure 3.5 Grinding bowls at Leone (Enright 2001).

In my analysis, artifact density is defined by dividing the total weight of debitage in each layer analyzed by the cm^3 of cultural sediment within those layers. Winterhoff (2007) used this method to define the second variable (*intensity*) in Costin's (1991) typology of nucleated workshops. My data are compared to Winterhoff's (2007) production density calculations of Tutuila's lithic assemblages calculated per valley. Note that in Figure 3.6 Winterhoff (2007) reports on density calculations from Fatu ma Futi. Winterhoff (2007) did not directly state where this information was obtained from. However, the data used in my thesis and the data reported by Winterhoff (2007) are the results of separate projects conducted by a different principal investigator and therefore are not the same.

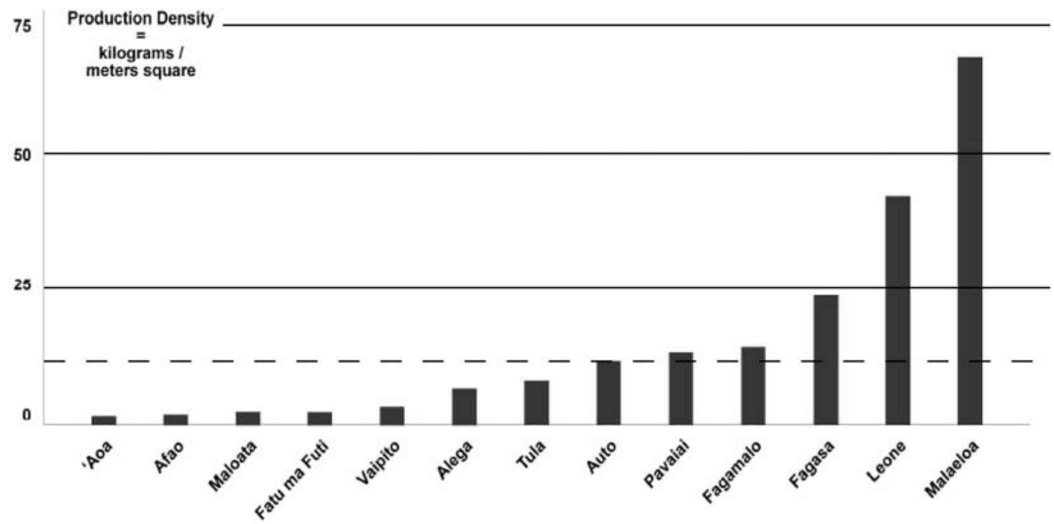

Figure 3.6 Tutuila's lithic production density calculations (Winterhoff 2007).

I do not expect concentrations similar to Arnold's (1984) findings on Santa Barbara. Winterhoff's (2007) calculations provide a scale of varying densities. A sizable flake density will fall within the range of Leone or Malaeloa and a weaker density will fall below the dotted line in Figure 3.6. The majority of flakes will contain simple attributes (early stage), and cores, hammerstones, preforms, adze rejects and *foagas* (grinding stones) should be present.

There should be few finished tools and an absence of flakes exhibiting polish (rejuvenation flakes). For example, at Pulltrouser, 30 km north of Colha, McAnany (1989) notes that in the case of direct procurement of lithic resources (from Colha) the assemblage should contain material from initial reduction stages, such as test nodules, prepared cores, preforms and large flakes with simple attribute complexes.

2) *A certain kind and degree of standardization in tool production methods*. Arnold (1984) indicates that there will be measurable standardization in the products and

byproducts of the Chumash bladelet industry. Standardization should not be confused with specialization. Standardization refers to consistency of a controlled and specialized system of production which reflects a highly regularized decision-making procedure (Arnold 1984). Routinization of the techniques used in extraction and/or production advances the process by eliminating time that would be otherwise spent on decisions about which behavior is more appropriate (Torrence 1986). Additionally, the same patterns are followed repeatedly (Torrence 1986) and may possibly be evident in the archaeological record. A result of standardized behavior is that raw materials and manufactured items will fall within a limited range of variability. The degree in conformity in these outputs will reflect this amount of standardization in behavior (Torrence 1986).

Arnold (1984) uses successful bladelet attributes such as weight, length, width and thickness. To determine how consistent reduction behavior was, bladelet scars left on core surfaces were analyzed to show the rates of successful production. These rates are linked to percussion preparation of core corner ridges before bladelet removal. Core platform angles were measured for consistency in achieving ideal platform configuration (Arnold 1984).

This indicator presents some difficulty as there is an absence of cores found at Fatumafuti. However I am able to explore two other criteria to define if there is a degree of consistency in tool production at the site. According to Winterhoff (2007), tool makers will specialize in producing certain types of tools at different production centers as a means of increasing efficiency. The production of one type of adze would have required less training and the specialist to focus on perfecting a set of skills in order to increase manufacturing efficiency. Therefore, preforms and any finished tools associated with the site will be consistent with one adze type (i.e., triangular or quadrangular). Additionally, there should be a high percentage of early stage adze thinning flakes. These are often large with simple attributes and tend to be wider than they are long.

In Cleghorn's (1986) study of the Mauna Kea adze quarry, on the big island of Hawai'i, he uses flake length and platform width to examine level of flake detachment skill at the site. He found that flakes with thinner platforms compared to the overall length reflect greater control and skill than those with thicker platforms. This information was then used to argue that there was a spatial difference in skill level at Mauna Kea. Similarly, I expect the flake length to platform width ratio to demonstrate considerable skill and control in the removal of flakes. The combination of controlled flake removal and a high percentage of early stage adze thinning flakes with simple attributes will suggest a certain degree of consistency in production methods.

3) *Repeated, intensive use of well defined activity areas (craft workshops) within a site.* Arnold (1984) states that workshop areas will be characterized by a dense concentration of bladelet cores, rejected and broken bladelets and core preparation flakes. Workshops will be characterized by repeated activity in sharply delineated areas separated from house floors, living spaces and food preparation areas (Arnold 1984). Arnold's (1984) findings reveal that at SCr1-93 and other sites around the quarry area there were notable similarities in the distribution of activity areas. There were neatly

circumscribed bladelet production workshops isolated from resource extraction areas, and these were generally upslope of the rock outcrops (Arnold 1984).

In Samoa, attached specialists often worked in close proximity to defensive features (Winterhoff 2007). These manufacturing sites would be larger so that those in control could benefit from merging their labor into one easily restricted location (Winterhoff 2007). This type of workshop is seen at the specialized quarry/workshop of Tataga-matau. According to Winterhoff (2007), in cases were individual producers where in control, production would occur close to residential structures. Independent producers would negate the energies of controlling production in order to maximize their own production. Production areas would be relegated to small interspersed manufacturing sites (Winterhoff 2007). If lithic production occurred in the form of attached specialization, workshops will be characterized as a dense concentration of adze cores, preforms, tool rejects and debitage located in a relatively isolated part of the valley near some sort of defensive feature (see Figure 3.4). Independent production (specialized or otherwise) will not be restricted to one specific isolated area in relation to defensive features. It is possible that production intensity was relegated to a specific area at the site, and/or activity areas moved over space and time.

To assess the extent of lithic debris and where the intensity of lithic production is greatest, spatial differences between excavation units 1 and 2 at Fatumafuti are examined. Using the radiocarbon dates obtained, early and late component have been identified. However, it is difficult to gauge if delineated activity areas exist as there is a limited number of excavation units and extent of the site's boundaries are not defined.

Therefore, it is my goal to determine if tool production was relegated to a particular area of the site (manifested as a concentration of lithic debris) or if this pattern is evenly distributed throughout. If there was repeated intensive use of a particular area, flake density calculations may vary between units and layers. Variability of flake density may suggest a change in behavior spatially or chronologically.

4) Evidence of some degree of control over critical stone resources (quarry areas). An expected indicator of control is the presence of major occupation sites at or near extraction sites so competition would be discouraged. Another indicator is evidence for ritual control over a quarry resource (Arnold 1984). For example, shrines at Mauna Kea support ritual activities at quarry settings.

Fatumafuti is not a resource extraction site, and the source of the material is unknown; therefore, it is not possible to define Fatumafuti as an occupation site at or near the basalt source. To address this indicator, I employ EDXRF to chemically characterize the basaltic rocks found at the site. My goal is to determine if discrete clusters of chemically similar artifacts group in such a way that the number of extraction sites used can be identified. Once this is accomplished, I compare my results to chemical signatures from geologic samples obtained from four different volcanic provinces on Tutuila to establish if any overlap in chemical signatures exists. If the lithics from Fatumafuti are chemically similar to one or more volcanic provinces on the island, it may suggest that this resource was not controlled by the inhabitants of Fatumafuti, depending on the distance of the site to the source. It is quite possible that the choice of resources may be a matter of convenience; however, this would be more feasible if basalt was collected from a location in close proximately to the site.

Establishing the location of basalt extrapolation sites is useful because in the Samoan *fono*, the titled person controls the accumulation and redistribution of strategic resources. These resources would then be exchanged for other goods and resources. Basalt outcrops located outside Fatumafuti's property boundary suggest that differential access to desired basalt sources existed, and a fee or service would be owed to those in control. The potential for differential access and economic control over critical resources is often the basis for the development of centralized power in complex societies (Arnold 1984). A chief's prestige is dependent on the successful production and redistribution of food and status goods. Therefore, the demands for status compel conscious and competitive chiefs to acquire goods for exchange, ritual obligations and the maintenance and aggrandizement of the chiefly line (Kirch 1984). If the data demonstrate that the lithics at Fatumafuti do not match any of the known sources, this may indicate that the provisioning area used has not been identified, or there may be complications with the method.

5) *The presence of specialist paraphernalia with certain burials*. Arnold (1984) indicates that there will be specialist tools found with various individual burials. I am unable to examine this indicator any further than to say that grave goods at Fatumafuti have not been documented in the report.

Summary

This chapter provided a theoretical foundation for the larger socio-economic and political questions that underpin my research. To understand craft production in Samoa, one must first understand the nature of a stratified kin based society. In a culture where resources were unevenly distributed, it is important to recognize who controls, produces and distributes strategic resources, and why. In Samoa, the degree of stratification was directly related to the surplus output of food producers, and the powers of high ranking individuals extend to decision making processes regarding the utilization of these strategic resources (Sahlins 1958). While the *aiga* would have control over the resources within their estate, the chief's role as the central distributive agent required that they accumulated these resources for distribution within the community. Therefore, lithic sources located within a village would have been available to those in the *aiga*, but the highest ranking individual would ultimately determine who uses the resource and in what capacity. Using Costin's (1991) four parameters of production, Winterhoff (2007) demonstrates that both attached and independent adze production occurred on Tutuila during the Samoan Traditional period. Winterhoff (2007) suggested that nucleated workshops, which were often a characteristic of increasing political complexity and stratified authority, occurred at this time. Through his research, Winterhoff (2007) concluded that Tutuilan chiefs controlled the distribution of adzes manufactured within community lands by means of negative reciprocity for inter-archipelago exchange.

I employ a model adapted from Arnold (1984) which utilizes four indicators for craft specialization: 1) a relative absolute volume of stone tool production materials (i.e., debris and waste flakes); 2) a certain kinds and degrees of standardization in tool production methods; 3) repeated, intensive use of well defined activity areas (craft workshops); 4) evidence of some degree of control over critical stone resources (quarry areas) (Arnold 1994). Using this approach, I define the type of production that occurred at the end of the Aceramic period at Fatumafuti, and deduce whether this is consistent with Winterhoff's (2007) findings of the production of other major workshops during the Traditional period.

CHAPTER IV

LITHIC ATTRIBUTE AND

GEOCHEMICAL ANALYSIS

This chapter discusses the methods and results of both the debitage and geochemical analyses. Both studies aim to identify whether meaningful patterns are present in the data. Such patterns are indicative of behavioral changes, which are reflected in the debitage characteristics and possible geochemical signatures of the basalt flakes. Examination of the waste flakes is directed towards size, shape, and weight, as well as the striking platform width and thickness, and the frequency of dorsal scars, platforms types and cortex. The geochemical analysis employees EDXRF to identify the elemental concentrations of Mg, Al, Si, K, Ca, Ti, V, Mn, Fe, Ni, Cu, Zn, Rb, Sr, Y, Zr, and Nb. Differentiation *between* and cohesion *within* elemental groups is explored using bivariate and multivariate statistical analyses. The results of these analyses are used to address the four research questions proposed in Chapter I.

DEBITAGE ANALYSIS

Statement of Purpose

A debitage analysis is conducted on flakes from Units 1 and 2 at Fatumafuti to examine variation in reduction strategies over space and time. The main attributes considered are flake condition, presence or absence of cortex and polish, striking platform, platform length and thickness, dorsal scarring, flake length, width and weight (refer to Chapter

III). Variation within the assemblage will enable me to answer 3 of the 4 questions proposed in Chapter I: the stage of reduction present (chaîne opératoire); whether the assemblages vary over space and time; and the nature of lithic craft production present. Answering these questions will provide a more comprehensive view of the activities that occurred at Fatumafuti. The capacity in which this site functioned will help to paint a larger picture of socioeconomic and political interactions within the island, and possibly the archipelago as a whole.

The Assemblage

The analysis of the lithics at Fatumafuti from the April 2005 excavation (Cleghorn et al. 2005) focused on units 1 and 2. Debitage from those units were excavated in two layers, unit 1 consists of layers 1-III and 1-IV, while unit 2 consists of 2-I and 2-II. From those units a total of 4,351 lithic pieces were analyzed (Table 4.1). Unit 1 dominates the assemblage with 3,358 pieces of debitage, 10 tools, 4 possible tools and 9 expedient tools. Unit 2, on the other hand has 966 pieces of debitage and 4 tools. The ratio of tools to debitage found within these two units (not including expedient tools) is 19:4324.

Table 4.1 Debitage type and quantity by layer .

	Debitage	Formal Tool	Possible Tool	Expedient Tool	Total
Unit 1					
Layer 1-III	1607	9	4	8	1628
Layer 1-IV	1751	1	1	0	1753
Unit 2					
Layer 2-I	334	4	0	0	338
Layer 2-II	632	0	0	0	632
Total	4324	14	5	8	4351

The *condition* of a flake (FC) can provide information on how the flake was removed and how other flake attributes should be interpreted (Andrefsky 2005). This attribute pertains to how complete the flake is. In this study, a *complete* flake is one that contains a platform, while a *fragment* is broken but still retains distinguishable features characteristic of a flake such a bulb of percussion, conchodial fracture or compression rings. *Shatter* is identified as the byproduct of lithic production but does not retain any distinguishable features. Shatter is the unintentional detachment of lithic material from an objective piece in a shape that was not anticipated (Andrefsky 2005). If the striking platform was not present, it is considered a fragment and no further technological attributes are recorded.

An *incomplete* flake is one that has been broken. Proximal fragments are recorded as a broken flake with intact platform; however, due to time constraints medial and distal fragments are not documented within the *flake condition* category. I decided to err on the side of caution, using the presence of a striking platform for further analysis to be conducted on a flake so that the number of actual flake removals would not be misrepresented.

Both units 1 and 2 have a high number of complete flakes (Table 4.2) which suggests that tool manufacture occurred (Kahn 1996). Unit 2, specifically layer 2-II, has is a large percentage of flake fragments. While Unit 1 has a lower amount of flake fragments, layer 1-IV significantly contains more than layer 1-III. These results indicate that the older assemblage (unit 1) contains more complete flakes than the younger (unit 2). Taken as a whole, the lithics from Fatumafuti contain more flakes than fragments, and a low amount of shatter.

Table 4.2 Flake Condition per Layer.

Layers	Flake	Fragment	Shatter	Total
Unit 2, L2-I	158	140	35	333
Unit 2, L2-II	244	315	71	630
Unit 1, L1-III	1192	271	152	1616
Unit 1, L1-IV	1132	476	141	1749
				Total 4328
Total	2726	1193	396	**Total** 4315

Kurskal-Wallis H Statistic: 223.986; df = 3; p < .0001.

Assemblage Density

Assemblage density (AD) is calculated by dividing the total weight of debitage in each layer analyzed by the cubic meter of cultural soil within those layers. Due to the wavy layer boundary, each layer had a varying thickness. Therefore an approximate thickness was taken for each. The total weight of flakes in each layer was determined and then converted to kilograms. Density calculations for layer 2-I = 0.001972, layer 2-II = 1.317, layer 1-III = 3.85 and layer 1-IV =1.837. Flakes densities appear very low. However, the layers from unit 1 contain the most density at the site.

Flake Size

Flake measurements (MA) follow Andrefsky (2005). Length is measured as the straight line distance from the proximal to distal end. Width is measured as the straight line distance perpendicular to the flake length line when the straight line intersects the flake at its widest point using calipers (Figure 4.1). All flakes were weighed in grams to determine the general size of flakes, along with the use of flake length and width. Platform thickness is measured in millimeters as the distance between the ventral and dorsal surface measure of the striking platform, and platform width is taken from the lateral margins of the flake using calipers.

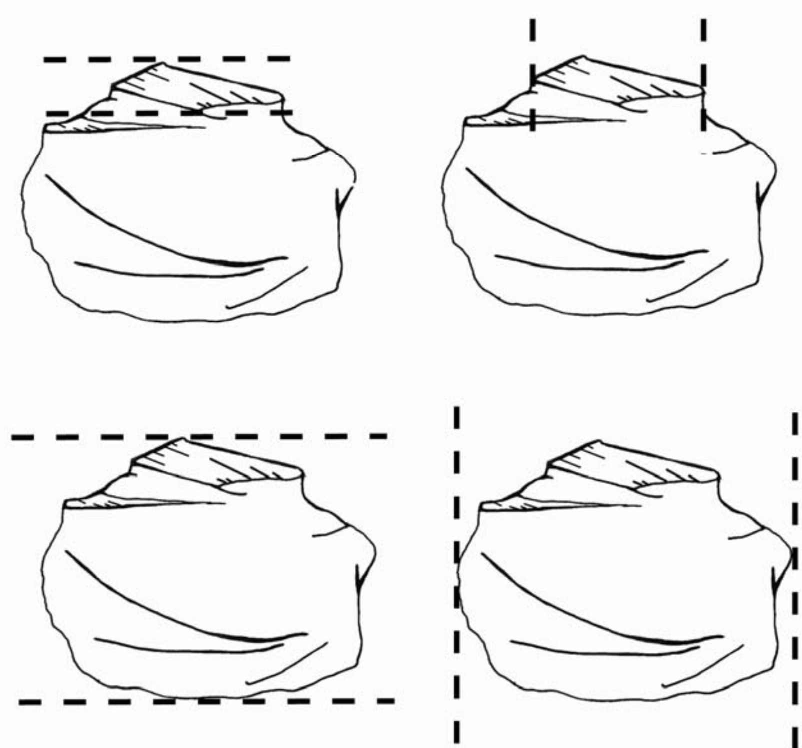

Figure 4.1 Illustration showing flake measurements.

The mean and standard deviation of length, width, weight and platform length and thickness are compared for units 1 and 2 (Table 4.3) using a non-parametric Kruskal-Wallis test. The debitage from unit 1 is larger than that of unit 2 in terms of all the measurements taken. This suggests that the older assemblage in unit 1 consisted of material that with an overall larger package size. The smaller materials in unit 2 potentially represent a shift in material selection. Within unit 1, the flakes from layer 1-III are on average larger than layer 1-IV and within unit 2, layer 2-I is larger than 2-II.

Table 4.3 Metric Data.

Layer	Platform Thickness	Platform Length	Length	Width	Weight
2-I					
Mean	2.53	8.29	12.29	13.97	5.84
N	334	334	334	334	334
Std.	3.6	11.43	15.44	17.58	10.74
2-II					
Mean	1.32	4.68	7.15	8.07	1.81
N	632	632	632	632	632
Std.	7.25	2.49	12.11	.41	.11
1-III					
Mean	3.56	12.76	20.36	22.72	5.83
N	1625	1625	1618	1618	1618
Std.	3.65	11.21	14.22	16.23	8.25
1-IV					
Mean	2.74	10.12	15.27	17.17	4.55
N	1755	1755	1753	1753	1753
Std.	10.84	3.18	14.92	17.16	9.42
Total					
Mean	2.82	10.18	15.76	17.67	4.73
N	4346	4346	4337	4337	4338
Std.	3.39	10.92	14.83	16.93	8.6
H Statistic	300.111	316.249	456.941	442.963	586.490
P value	.0001	.0001	.0001	.0001	.0001

Early Stage Adze Thinning Flakes

The goal of this part of the analysis is to determine if early stage adze thinning flakes (ESATF) can be identified in the assemblage using a length to width ratio. Adzes thinning flakes that are most notably recognized in this project occur in two forms (Figure 4.2); and flakes that are short and squat and often removed from the top or bottom of an adze, flakes more indicative of detachment from the side of an adze. These are identified in this study by their boot-like shape, a long transversal scar at the larger distal end, and a small proximal.

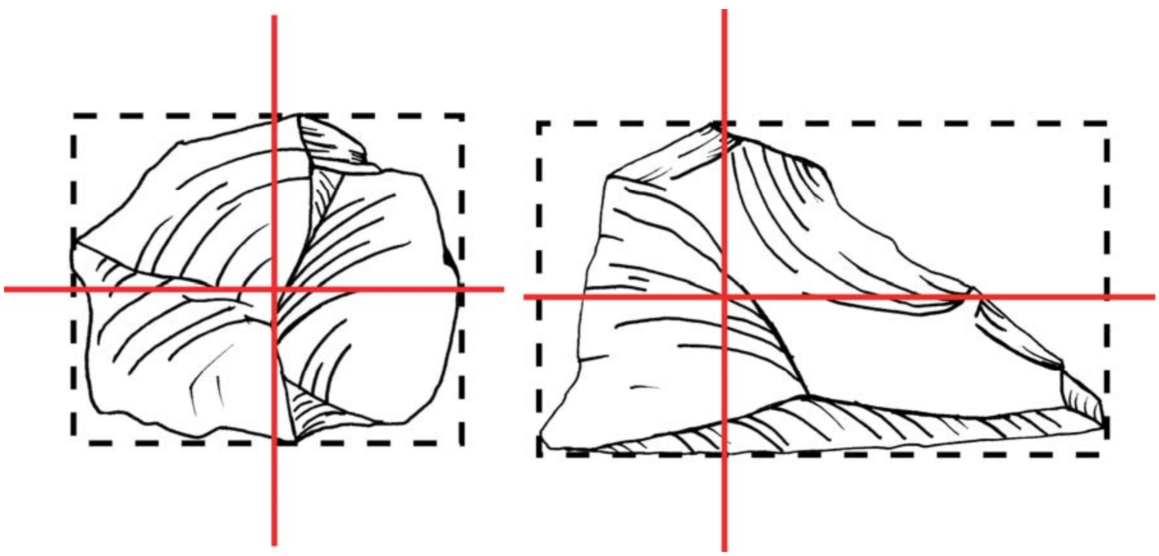

Figure 4.2 Early stage adze thinning flakes.

Using flake length divided by flake width, I identify top/bottom thinning flakes by an index of 0.8 to 1.10. This index is used because the shape of these thinning flakes tends to be square-like. When a box is drawn around the edge of the flake, all four sides touch the edge of the box (see Figure 4.2), compared to side thinning flakes where only the top and bottom are in contact with the box. Therefore, side thinning flakes are not identified here.

Initially to be included in the analysis, the minimum flake length and width had to be 40 mm; anything below that as not included in the study. However, to accommodate for flakes that had one measurement over 40 mm and another that was slight below (i.e., 38 or 39 mm), I incorporated an additional class. Therefore, I refer to the first class of flakes within the range of 0.8 to 1.10 and a flake length and width of 40 mm and larger as index 1. The second class of flakes with a length and width of 30-40 mm is referred as index 2. Of the 338 flakes in layer 2-I, six met the requirements of index 1 and six met the requirements of index 2, and of the 634 flakes in layer 2-II, one flake falls within index 1 and five within index 2. Layer 1-III contains 1630 flakes, 37 of which fall within index 1 and 57 in index 2, while of the 1753 flakes in layer 1-IV 26 are within index1 and 43 are in index 2.

Early stage reduction is characterized by more adze thinning flakes because the shaping and thinning of an objective piece requires the removal of larger flakes; therefore, these results are not suggestive of the repetitive removal of early stage thinning flakes. Even if I were to assume that there was just as many side thinning flakes as top/bottom thinning flakes in layer 1-III, 4.5% of the flakes in that layer would fall within the range of index 1. If I combined index 2, 11.5% of the flakes in the assemblage would be adze thinning. Figure 4.3 depicts a scatterplot of length and width for all four layers. A general trend from long/wide flakes to short/thin is seen. Unit 1 contains more flakes; however, the flakes in unit 2 are either mostly concentrated above or below the regression line while those in unit 1 are more evenly distributed around the regression line. This could potentially suggest that flakes in unit 1 were the result of a repeated behavior to achieve a preconceived tool type while the behavior in unit 2 was more variable, resulting in a more uneven distribution of flake form.

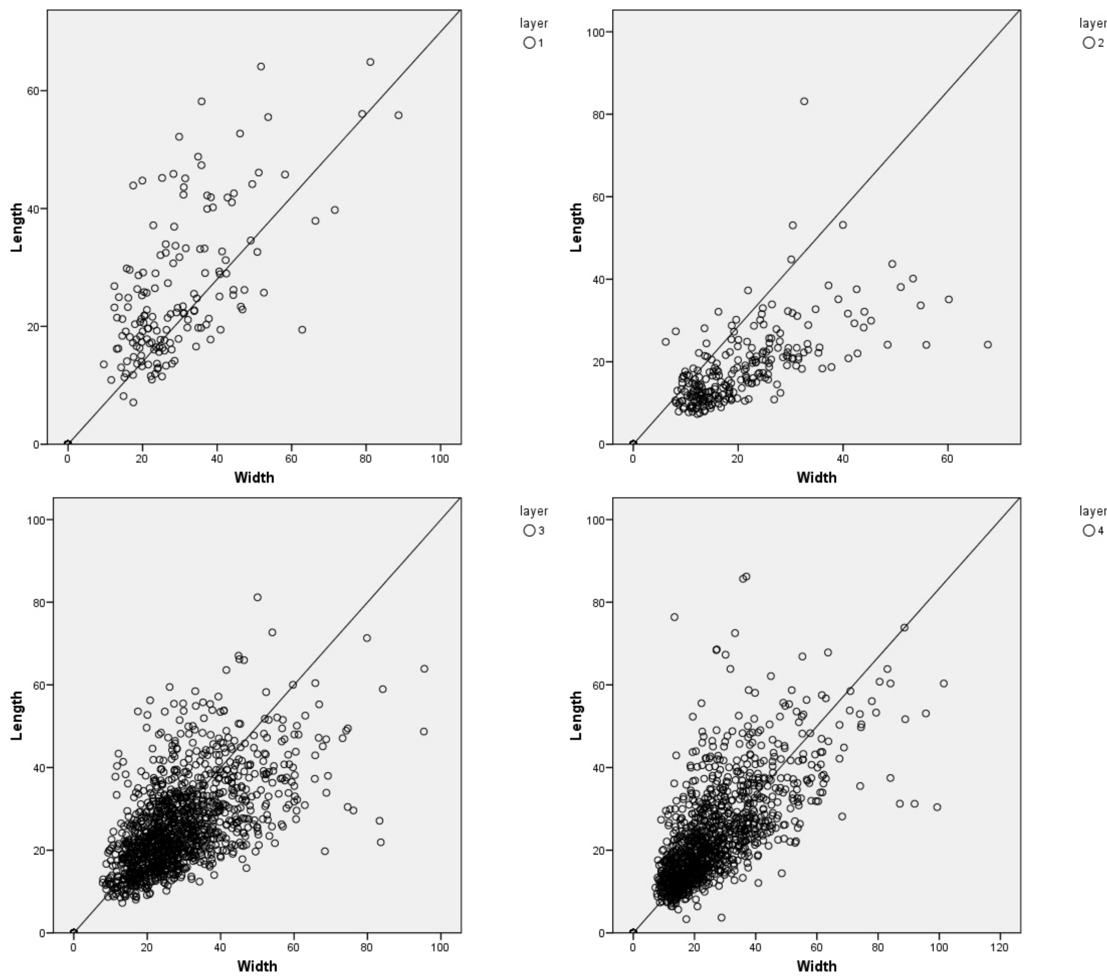

Figure 4.3 Scatterplot of flake length and width for all four layers.

Flake Length and Platform Thickness Ratio

The mean flake length in layer 1-III is 20.35 mm and the mean platform thickness is 3.56 mm. In layer 1-IV the mean flake length is 15.25 mm and the mean platform thickness is 2.74 mm. The mean flake length in layer 2-I is 12.29 mm and the mean platform thickness is 2.5 mm, the mean flake length in layer 2-II is 7.15 mm and the mean platform thickness is 1.31 mm. Flake length to platform thickness (FLPT) is consistent throughout each layer; flakes larger in length have thicker platforms. All four layers have ratios between 5:1 and 6:1 (Table 4.4) suggesting that a high degree of skill was exercised during flake detachment.

Table 4.4 Ratio of Flake Length and Platform Thickness.

Layer	**2-I**	**2-II**	**1-III**	**1-IV**
Ratio	5:1	5.5:1	6:1	5.5:1

Cortex

At Tataga-matau, Leach and Witter (1989) report that there was a low number of cortical flakes and no obvious cases of cobbles or weathered out boulders serving as core blanks. It is my contention that cortex can often serve as a decent indicator of primary reduction; however, the absence of cortex does not disprove that early stage reduction occurred. Therefore, I rely partly on the size and weight of a flake to measure the stage of reduction.

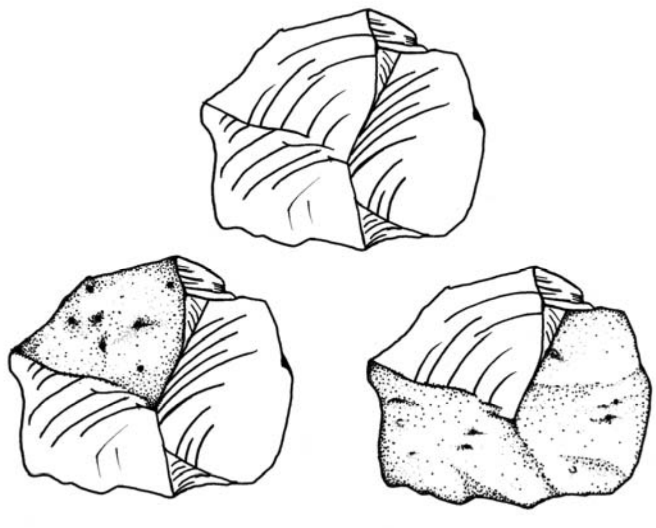

Figure 4.4 Degrees of cortex.

Cortex is measured by presence or absence of an outer cortical rind on the dorsal surface of the flake (Figure 4.4). Using the non-parametric Kruskal Wallis test, the amount of cortex was measured as either more than 50 % of the dorsal surface or less than 50 % of the dorsal surface or 0% (Table 4.5). In unit 1, there are a total of 2,899 flakes without cortex, 1,345 are from layer 1-III and 1,554 are from layer 1-IV; while there is a small amount of cortex present in the assemblage, layers 2-I and 1-III typically yield flakes with more cortex. These results indicate the majority of cortex was removed from the source material prior to tool manufacture in the area around units 1 and 2.

In unit 1, there were more observed flakes with cortex than expected, while in unit 2 there were more flakes without cortex than expected and fewer flakes than expected with cortex. This indicates that the basalt material in unit one was not removed of as much cortex as expected and unit 2 was removed of more cortex than expected before it was introduced to the area. These results suggest that reduction strategies in the older (unit 1) and younger (unit 2) assemblages may have differed from one another.

Table. 4.5 Percentage of Cortex for Each Layer.

Cortex	2-I	2-II	1-III	1-IV	Total
0%	294	592	1345	1555	3786
≤ 50%	14	10	75	42	141
> 50%	30	30	205	158	423
Total	338	632	1625	1755	4350

Kruskal Wallis H Statistic: 53.718 ; df = 3; p< 0.0001

Dorsal Scar

Dorsal scars are measured from 1-5, with 1 representing a single scar and 5 representing any number of scars greater than 4 (Figure 4.5). A flake is identified as having one dorsal scar in cases where cortical flakes (or other homogenous dorsal surfaces) exhibit one previous flake removal. Scars or crushing (located near the platform) created during the removal of that piece are not noted in the analysis as these may not represent previous flake removals. This analysis does not take into consideration flake fragments, shatter, flakes with no apparent scars or unidentifiable scars (i.e., heavily weathered flakes).

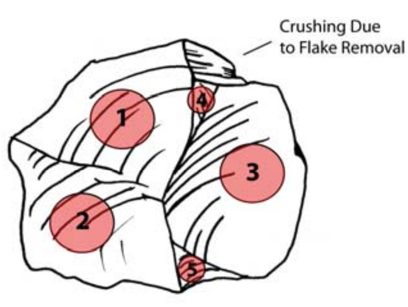

Figure 4.5 Dorsal scar count.

The dorsal scar counts indicate that on a broad scale (total assemblage) the dominate behavior was middle stage tool reduction (Table 4.6). On a smaller scale (individual layers) slightly more variation can be seen. For instance, in layer 1-III measurements fall between 205 and 271 for every count except for 1 dorsal scar; however, the highest counts are in the 3 and 4 dorsal scar category. Layer 1-IV, on the other hand, appears to be slightly more variable in the dorsal scar count measurement, yet there is a high concentration in the 2 and 3 dorsal scar category. This trend continues in unit 2 where flake concentrations for layer 2-I are in the 3 and 4 categories, while concentrations in layer 2-II are in the 2 and 3 categories. Comparing the older assemblage (unit1) and the younger assemblage (unit 2) suggests that slightly more early stage reduction occurred around unit 2 at the base of the talus slope. Flakes with 2 or fewer dorsal scars make up 32.8% of the assemblage in unit 2, while 26.7% of flakes with 2 or fewer scars make up the assemblage in unit 1.

Both the cortex and dorsal scar results show a shift in the observed and expected counts from the older (unit 1) and younger (unit 2) assemblages; however, these shifts are not consistent from one attribute to the other. For instance, unit 1 contained more cortex than expected; therefore I would have assumed that there would be more flakes with two or less dorsal scars than expected. Yet, this is not the case. Unit 1 contained more flakes with cortex and fewer flakes with two or less dorsal scars than expected. Similarly in unit 2, there were more flakes without cortex than expected and more flakes with two or fewer dorsal scars than expected.

Table 4.6 Dorsal Scar Counts for Each Layer.

	Layer				
Dorsal Scar Count	**2-I**	**2-II**	**1-III**	**1-IV**	**Total**
1	5	3	30	15	53
2	23	51	205	220	499
3	25	53	271	301	650
4	28	28	253	151	460
More than 4	18	16	232	79	345
Total	99	151	991	766	2007

Kurskal-Wallis H Statistic: 61.593; df = 3; p < 0001.

Striking Platform

Flake termination was measured but was not used for this study. In this analysis, cortical platforms are composed of a complete or partially unmodified cortical surface. If a platform appeared to be partly complex or crushed but still retained a partial cortical surface it was scored as a platform with cortex. Flat platforms are smooth with a flat surface while complex platforms have multiple flake scars from previous flake removals (Figure 4.6). Platform facets were not counted and flakes were recorded as being flat or complex (two or more facets).

Platforms exhibiting polish can suggest that the flake was detached from a polished adze. These are often referred to as tool rejuvenation flakes as that piece was potentially part of a larger tool that may have broken or reused. However, it is difficult to identify tool curation on the presence of polished flakes alone. Polish can be removed quickly from a tool during use, and when curated, it may not reveal itself as a rejuvenation flake. Additionally, debitage and tools can accrue polish that is not culturally related during post depositional processes. Crushed platforms are often caused during the flake removal process from hard hammer percussion, resulting in the partial removal of the platform;

however, evidence of its existence is still there. If a platform is absent then it has been broken off, resulting in a flake fragment. If a platform cannot be determined due to weathering or other unforeseeable circumstances it was categorized as undistinguishable.

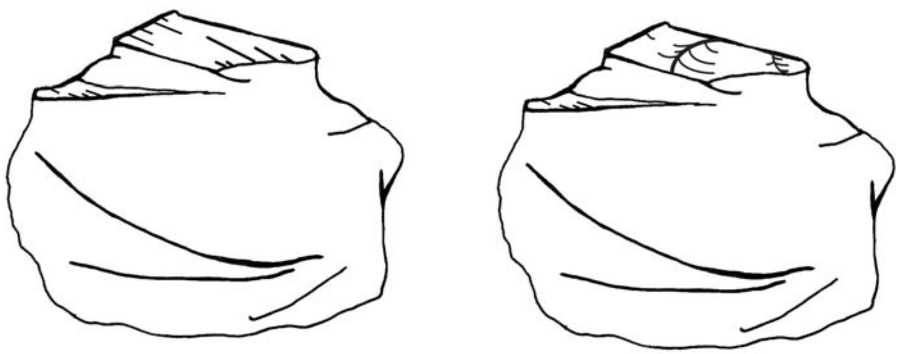

Figure 4.6 Flat and complex platforms.

The majority of flakes in the Fatumafuti assemblage are flat (unit 1 = 54.2% and unit 2 = 65.7%) while the second largest platform category is complex (unit 1 = 31.7% and unit 2 = 18%) (Table 4.7). This suggests that a variety of reduction methods took place. For instance, the large amount of flakes with flat platforms implies that flakes with simple attributes have a noticeable presence in the assemblage and that early stage reduction did occur. However, not only does the presence of complex platforms indicate that middle to late stage reduction occurred as well, but the high percentage of flakes with three or more dorsal scars throughout the assemblages suggests that early stage reduction was not the dominate activity in these locations. Yet the large amount of flakes with flat platforms requires more thought and will be considered further in regards to the type of tools produced at the site.

A small portion of the assemblage contains flakes with cortical platforms. This may potentially suggest that the raw material was removed of its cortex prior to entering the site. The slight change in platforms with cortex between the older and younger assemblage (unit 1 and 2) are consistent with the results of the dorsal cortex analysis, suggesting that there was a change in behavior, either in the material collected or extraction methods used. Platform attributes indicate that the Fatumafuti assemblage contains a small amount of flakes with polish, suggesting that tool rejuvenate occurred but was not the dominate activity; however, examination of other aspects of the assemblage must be done before this conclusion can be confidently reached. The presence of crushed platforms suggests that either hard hammer percussion was used or an extreme amount force was used during flake removal, or perhaps both. The decrease of crushed platforms in unit 2 further supports that a change in reduction methods may have occurred. The larger presence of crushed platforms, the larger flake size and high percentage of flakes with 3 or more dorsal scars reveals a trend in the production strategy used near unit 1. Objective pieces may have potentially been reduced to a greater degree and more intensity during older the occupation at Fatumafuti than the younger.

While a consistent shift in observed and expected counts is not seen between cortex amount and dorsal scar counts, a consistent shift is observed between platform type and dorsal counts. Flakes with complex platforms and three or more dorsal scars occurred more frequently than expected in unit 1. Similarly, flakes with flat platforms and two or fewer dorsal scars occurred less frequently than expected in unit 2. This indicates there was change in reduction strategies (i.e., a change in behavior) from the older to the younger (unit 2) assemblages. On the basis of these differences I posit that the needs of

Fatumafuti's residents changed in some way. A change in needs would require a change in the decisions made during tool production.

Table 4.7 Platform Types for Each Layer.

	Layer				
	2-I	**2-II**	**1-III**	**1-IV**	**Total**
Platform					
Cortical	16	9	38	38	101
Flat	78	58	599	621	1356
Complex	30	35	476	237	773
Polish	1	0	3	2	6
Crushed	15	17	77	161	270
Total	140	219	1193	1059	2611

X^2 =163.916; df = 12; p < .0001.

Dorsal Scars and Platform Types

To determine if there is a significant difference between flakes with simple or complex attributes, flakes with flat platforms (FP) and two or less dorsal scars (DS) are compared to those that have complex platforms and 3 or more dorsal scars. The null hypothesis is that flakes with flat platforms also have two or less dorsal scars. The alternative hypothesis is that they would be two separate populations. A Pearson Chi Square was preformed for each case. All four layers contained a higher percentage of flakes with three or more dorsal scars, regardless if platforms are flat or complex (Table 4.8). Layer 2-II does not have a high p value; however, the observed flake count differs by no more than 2.5 from the expected flake count. Yet the three other layers are statistically significant, therefore I conclude on this basis that flakes containing more than one simple attribute (flat platforms and two or less dorsal scars) are a minority in the Fatumafuti assemblage.

Table 4.8 Flakes with Simple and Complex Attributes.

Platform/Dorsal Scars **Layers**	**FP/** **≤ 2 DS**	**FP/** **≥ 3 DS**	**CP/** **≤ 2 DS**	**CP** **≥ 3 DS**
2-I X^2 = 12.297; df = 4; p = .015	9	43	8	12
2-II X^2 = 1.699; df =; 4 = .791	37	66	6	15
1-III X^2 = 11.581; df = 4; p =.021	101	337	300	70
1-IV X^2 = 3.675; df = 4; p = .452	130	291	48	121

Tools

Very few tools were recovered and they were often difficult to identify (Table 4.9). Edge modification of certain flakes may potentially represent heavily used expedient tools, scraper tools, or modifications as the result of post depositional processes. Additionally, many flakes in this category are fragments, making it more difficult to determine their intended use. This category scored lithics as either debitage, formal tools, possible tools and expedient tools. A *formal tool* is defined as an object that exhibits intentional shaping for a desired use (a scraper, adze or perform). A *possible tool* is an object that cannot be typed beyond a reasonable doubt, while an *expedient tool* is a piece of debitage that shows signs of use but was not worked into a formal shape. The presence of use wear was assessed using a hand lens (10X). If flakes exhibit nibbling, abrading or smoothed edges indicative of expedient use, it was then assigned to the expedient tool category. However, if the flake appears to be used expediently but it is uncertain, it is assigned to the possible tool category.

Table 4.9 Location and Description of Tools.

Artifact #	Unit	Level/Layer	Type	Description
1-105-4b	1	30-50cm/3	1a/adze scraper	Tapering of lateral sides from working end to the butt.
1-106-4b	1	30-50cm/3	Type 8	Adzelet, possible reworked tool.
1-18-4b	1	30-50cm/3	Type 2	Rounded scraper.
1-9-5b	1	30-50cm/3	Type 2c	Rounded scraper, elongated butt, heavily flaked around the bevel.
1-82-5b	1	30-50cm/3		Thumb nail scraper.
1-19-5b	1	30-50cm/3		Broken scraper.
1-145-5b	1	30-50cm/3		Medial fragment of unknown tool type .
1-26-4b	1	30-50cm/3		Broken unifacial tool.
1-20-4b	1	30-50cm/3	Expedient	Blade-like.
1-148-6b	1	30-50cm/3	Type 3	Light scraper from elongated flake.
1-44-6b	1	30-50cm/3		Broken elongated flake tool.
1-22-6b	1	30-50cm/3		Possibly utilized bifacially worked. implement.
1-24-6b	1	30-50cm/3	Expedient	Flake
1-64-6b	1	30-50cm/3	Expedient	Flake
1-18-6b	1	30-50cm/3	Expedient	Flake
1-31-6b	1	30-50cm/3	Expedient	Flake
1-128-6b	1	30-50cm/3	Expedient	Flake
1-146-6b	1	30-50cm/3	Expedient	Flake
1-1-25b	1	70-80cm/3	Expedient	Flake
1-76-25b	1	70-80cm/3	Blank	Tool Blank.
1-1-39	1	80-90cm/4	Adze	Exhausted triangular adze.
2-1-45	2	10-20cm/1	Preform	Possible type I or II.
2-22-68d	2	120-130cm/1	Scrapper	Broken scrapper.
2-14-53	2	60-70cm/1		Bifacially worked implement.
2-1-54b	2	60-70cm/1		Adze fragment.

In unit 1, 13 tools have been identified, 12 from layer 1-III these include: one Type 1a/adze scraper (Figure 4.10) that is characterized by tapering of the lateral sides from working end to butt; one modified flake that looks like a small thin adze (a possible Type 8 adzelet) (Figure 4.14) (appears to be from a recycled tool); two Type 2 scrapers (Figure 4.10), one is simply characterized as a rounded scraper and the other appears to be more similar to a Type 2c with an elongated butt and heavy flaking along the bevel;

one possible broken scrapper (Figure 4.13, bottom left); one unifacial thumbnail scraper (Figure 4.10), hand held; one broken unifacial flake tool (Figure 4.10); one medial fragment of an unknown tool type (Figure 4.15); one possible Type 3, a light scraper made from an elongated flake or blade (Figure 4.11, left); one broken elongated flake tool (Figure 4.11, middle); one possible utilized bifacial implement (Figure 4.12); and one tool blank (Figure 4.8). Layer 1-IV contains one single exhausted triangular adze (Figure 4.9) and possible Type VI with some minor polish. In Unit 2 there are considerably fewer tools and all originate from a layer 2-I: one hammerstone; one large adze preform (Figure 4.7), a possible Type I or II; one adze fragment with polish (Figure 4.16); one broken scrapper (Figure 4.10, top right), possible Type 2; and one bifacially worked implement (Figure 4.12).

Figure 4.7 Large adze preform.

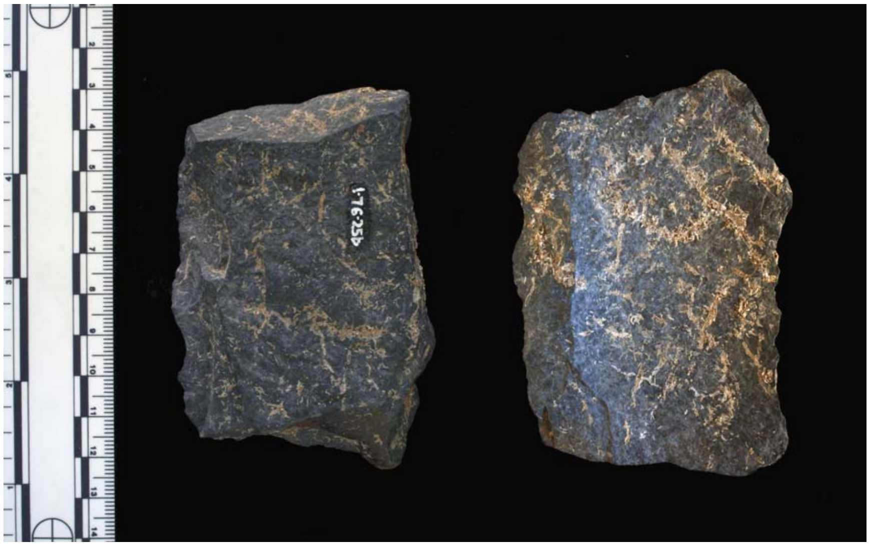

Figure 4.8. Tool blank.

Figure 4.9. Exhausted adze.

Figure 4.10. Scrapper tools.

Figure 4.11. Elongated flake tools.

Figure 4.12. Bifacially worked implements.

Figure 4.13 Expedient flakes tools.

Figure 4.14 Type 8 adzelet scraper.

Figure 4.15 Tool fragments.

Figure 4.16. Adze bevel fragment.

In summary, the majority of tools found in units 1 and 2 are from layers 2-I and 1-III. These tools range in size from large adze preforms, small scrapers to expedient flake tools. In layer 1-III, the majority of tools are small flake tools. The only completed adze was an exhausted triangular tool from layer 1-IV. Layer 2-I appears to follow the same trend as layer 1-III, although with a smaller sample. Layer 2-I has the largest piece from the collection, a possible Type I or II adze preform weighing 682.2 g. Additionally, there is a broken scraper and an adze fragment containing polish over most of the dorsal face. Although there is a small amount of flakes in the assemblage that have polish on their dorsal surface (not including tools), almost all of these occur in layers 2-I and 1-III. Layer 1-III has eight flakes with polish, layer 2-I has five flakes with polish and layer 1-IV has two flakes. Comparing tools and debitage reveals that the two largest tools (adze preforms) are found in layers 2-I and 1-III, a finding that is consistent with the larger flake sizes in these layers. The presence of flake tools in these layers is also consistent with the debitage results suggesting that layers 2-I and 1-III were reduced to a greater extent.

Summary

There were 3,358 pieces of debitage in unit 1, ten tools, four possible tools and nine expedient tools. Unit 2 contained 966 pieces of debitage and four tools. According to experimental studies by Baumler and Downum (1989:107), high percentages of complete flakes (30-88%) are associated with tool production. In layer 1-III of unit 1, 73.8% of flakes were complete, while the percentage of complete flakes from layer 1-IV amounts to 64.7%. In unit 2, the number of complete flakes from layer one was 47.4% and 38.7% in layer 2-II, therefore all 4 layers fall within Baumler and Downum’s range.

Layer 1-III was consistently larger than layer 1-IV in every respect (length, width and weight), and following the same trend, layer 2-I was consistently larger than layer 2-II. Platform thickness and length concur with the metric measurements of all four layers; layer 2-I had a mean platform thickness of 2.53 mm and a mean platform length of 8.29 mm compared to that of layer 2-II which had a mean thickness of 1.31 mm and a mean length of 4.68 mm. In terms of cortex, the assemblage had a low percent in general; however, layers 2-I and 1-III typically yielded flakes with more cortex.

In the dorsal scar category, layer 1-III measurements were the highest in the 3 and 4 dorsal scar category. Layer 1-IV on the other hand appeared to be slightly more variable, yet there was a high concentration in the 2 and 3 dorsal scar category. In unit 2, dorsal scar counts in layer 2-I were highest in the 3 and 4 categories, while concentrations in layer 2-II were highest in the 2 and 3 categories. Dorsal scar complexity (Kahn 1996; Turner and Bonica 1994) was useful for distinguishing between early and late stage adze reduction. Early stage adze production tends to produce a low to moderate amount (10-30%) of debitage with three or more dorsal scars, while the majority of debitage has two or fewer dorsal scars. Assemblages that represent the full range of adze reduction should be dominated by early stage flakes containing two or fewer dorsal scars, but with a higher percentage of flakes with three or more scars (15.5-18%) (Kahn 1996). Layers 2-I, 2-II, 1-III and 1-IV all contained a low amount of flakes with two or fewer dorsal scars (28.0%, 35.8%, 22.4 % and 30.6%). Flakes that contained three or more dorsal scars dominated the Fatumafuti assemblage as 71% of the flakes from layer 2-I have more than three flakes scars, 64.2% in layer 2-II, 76.2% in layer 1-III and 69.4% in layer 1-IV. According to Kahn (1996), comparing the frequency of flakes with two or fewer dorsal scars to those with three or more is potentially useful for distinguishing adze manufacturing stages.

The high percentage of flat platforms is interesting as it conflicts with the dorsal scar results. In terms of bifacial tools, flat platforms are often indicative of an earlier stage of reduction. However, the strong presence of flat platforms is important for understanding the range of lithic activities at Fatumafuti. According to Frison (1968), flat striking platforms are often the result of side and end scraper retouch (Figure 4.17). The presence of formal scrapers that displayed various degrees of use suggested that scrapers were produced, used and reworked at or near the site. One scraper in particular exhibited intense modification as the working edge is polished and had a slope of 90° or greater. Therefore I believe that scrapper production was an activity that occurred in addition to adze production. However, not all flat platforms are the result of scraper production and retouch; many of these are indeed the result of early stage adze and scraper tool reduction.

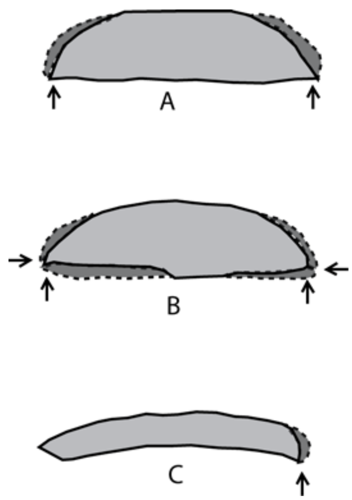

Figure 4.17 Schematic representation of retouch (adapted from Frison 1968).

Experimental studies suggest that platform complexity generally increases as tool production proceeds (Kahn 1996). Examining striking platforms reveals that the majority of flakes in unit 1 fall into the flat and complex category. However, the variation between the layers is seen in layer 1-III. Here there are more complex platforms, whereas in layer 1-IV there are more crushed platforms. Comparatively, unit 2 has more flakes with flat striking platforms, particularly in layer 2-II. Overall, there was strong presence of complex and crushed platforms in unit 1. Along with the dorsal scar counts reported above, this suggests that the flakes from the older assemblage (unit 1) were reduced to a greater degree than the younger assemblage (unit 2).

The results of the debitage analysis indicate that a range of tool production activities occurred at Fatumafuti (see Table 4.10). Early stage reduction is evident from the presence of flakes with two or less dorsal scars, flat platforms, adze thinning flakes and the tool blank and preform. The high percentage of late stage dorsal scars and complex platforms suggests that the dominant activity was mid-late stage tool reduction. Both adzes and scrapers were produced, and tool curation is present, suggesting that a broad range of tools were manufactured at Fatumafuti. The presence of these tools attests to past activities at the site. There was a reliance of agriculture, as well as marine life which is supported in the large shell midden found in units 1 and 3 (Cleghorn et al 2005).

Table 4.10 Results of debitage analysis.

Analysis	Unit 1	Unit 2
FC	More complete flakes	More fragments in unit 2 (layer 2-II)
AD	Overall, low densities but higher flake density.	
MA	Larger in all attributes measured, largest in layer 1-III.	Slightly smaller; largest in layer 2-I
ESATF	Low percentage of ESATF; flakes more evenly distributed around 1:1 ratio.	Lower percentage than unit1; not evenly distributed around the 1:1 ratio.
Cortex	Low	Low
DS	Mid to late stage reduction; over 70% of flakes have 3 or more dorsal scars.	Mid to late stage reduction; slightly less flakes with 3 or more dorsal scars than unit 1.
FLPT	Within 5:1 and 7:1	Within 5:1 and 7:1
Platforms	Flat platforms most abundant; Complex second most; little Polish, but more than unit 2	Flat platforms most abundant; complex second most; more flat platforms compared to unit 1;
Tools	More scrapers and expedient tools than unit 2; one adze, one blank.	One adze preform

GEOCHEMICAL ANALYSIS

Statement of Purpose

The following section discusses the geochemical characterization of a sample of flakes from units 1 and 2 at Fatumafuti. According to Jones and colleagues (1997) the study of stone artifacts has traditionally been conducted using stylistic characteristics; however, source provenance analysis of lithic artifacts has become increasingly important for investigating patterns of technological organization, exchange and settlement mobility patterns (Jones et al. 1997). According to Weisler (1993a), geochemical analysis has been argued to be extremely beneficial for long-term and regional-scale distributional studies because: (1) the results are reproducible; (2) instrument operating conditions can be reported in full facilitating comparison of regional databases; (3) the identification of elements is not subject to human errors (as with thin sections); (4) elemental boundaries can be reported with precision and accuracy values for specimens and standards; and (5) geochemical sampling locales on specimens more closely represents the population rather than the petrographic thin-sections which are limited by two-dimensional surfaces. Thin sections are used to identify the mineral composition in a sample to determine if it is similar to another.

The purpose of this section is twofold. First, I introduce the data using bivariate and multivariate statistical analyses to identify elements that are most influential in causing variation. The use of EDXRF may potentially reveal whether one or more basalt sources were used, and whether material selection changed over time. Distinguishing the number of sources and change or stability over time can be informative of past ideas and behaviors. Second, EDXRF concentrations from Fatumafuti are compared to Johnson's (in press, 2009) EDXRF analysis of geologic resource provenance sites (Tataga-matau, Lau'agae, Asiapa and Alega) to determine if elemental similarities exist. Identifying source level provenance will allow for an advanced understanding and interpretation of the intricacies of Samoan socioeconomic and political interactions within the archipelago and throughout the Pacific (Johnson 2005).

Methods

This project analyzed 179 basalt flakes and tools using EDXRF to determine their elemental signatures. One-hundred and eight samples are from unit 1 and 71 are from unit 2. All samples were analyzed on a Thermo *QuantX* EC EDXRF at the Texas A&M University Center for Chemical Characterization, under the supervision of Dr. William D. James, of the Elemental Analysis Laboratory (EAL). Spectrometer calibration and geochemical method was by Lundblad and colleagues (2008) at the University of Hawai'i-Hilo and modified by Johnson at Texas A&M University EAL. Johnson's (in press, 2009) geologic standards (for calibration and control) and Tutuilan basalt samples were pressed into 4g pellets. My samples were not pelletized; however, this will be discussed later as differences in sample preparation may be problematic. X-ray fluorescence analysis is based on the detection of X-rays of various energies emitted by atoms that have been excited by high-energy X-rays. Electrons are dislodged from the inner most shells of the atoms in the sample, at which point the vacant shells are filled by electrons falling from higher energy orbitals into lower energy shells. The energy is conserved through the emission of radiation with discrete energies and wavelengths (Jones et al. 1997).

Initially, five flakes were chosen randomly from each lab bag (from each level cm) for processing; however, due to various constraints of artifact size, shape and quantity a slight variation to this approach was needed. Artifact dimensions and quantity are a concern for three reasons. First, there are three sample trays that allow for three different quantities to be analyzed at once; is a one sample tray, the second is a ten sample tray, and the third is a twenty sample tray. In general, I ran a twenty sample tray for each session, and this required that all 20 sample positions be filled in order for the machine to run. Each piece of debitage had to be small enough for all 20 samples to fit on the tray at once, but big enough to not fall through to sample position into the machine. Second, some lab bags either did not have enough flakes or they were not an appropriate size for the sample tray. Therefore, if sample positions were left open, more flakes from other bags were used. Third, all tools and flakes with polish were analyzed, which often increased the sample number from each lab bag. Samples were cleaned using warm water and a soft toothbrush.

Elemental data were analyzed with SPSS 15.0 normalizing to log10. Principal components analysis (PCA) and K-means cluster analysis were conducted to look for archaeologically significant groupings and patterns of association between the variables (Shennan 1988). Elemental concentrations were explored by component cluster, unit and layer basis. Additionally, bivariate plots and PCA plots from Fatumafuti were compared to Johnson’s (in press) results from Tataga-matau, Lau’agae, Asiapa and Alega. The results of these various analyses are discussed.

Cluster Analysis

Cluster analysis was used as an exploratory method as the number of source sites is unknown. Therefore, K-means provided a way to analyze elemental concentrations without prior knowledge of source quantities (Table 4.11). A number of clusters were explored, yet tight groupings were not seen. However, the assignment of three clusters conveyed the best separation of elements. Elements identified as contributing the most amount of variation within my sample are Mg, Al, Si, Ca, Fe and to a lesser extent K and Ti. Regardless of cluster number, there was always a cluster containing one artifact. The artifact (from unit 1 layer 1-III) is seen graphically as a single outlier. A closer look at the chemical signatures in the clusters indicates that it contains a higher amount of nickel than artifacts in the other two clusters. Therefore, the element driving the variation in the single outlier was identified and explored graphically. I decided to keep this artifact in the clusters and biplots as its presence did not affect assignments of artifacts to other groups.

Table 4.11 Element Percentage in ppm per cluster.

	Cluster			
	1	**2**	**3**	**Total**
Mg	136860.3 ± 11993.38	103626.4 ± 0	109813.5 ± 16514.71	130328.5 ± 17544.88
Al	136860.3 ± 11993.38	103626.4 ± 0	109813.5 ± 16514.71	130328.5 ± 17544.8
Si	232626.4 ± 7917.660	220897.9 ± 0	210339.0 ± 11888.02	227331.4 ± 13033.86
K	12059.58 ± 2278.460	9811.782 ± 0	8265.622 ± 2142.722	11156.82 ± 2756.813
Ca	54132.74 ± 11741.61	101230.1 ± 0	126718.0 ± 35603.96	71427.04 ± 36761.29
Ti	22401.01 ± 4853.056	22134.26 ± 0	17039.64 ± 3708.202	21141.54 ± 5120.302
V	.0632941 ± .01033019	.6800000 ± 0	.0412143 ± .01277867	.0615587 ± .04865403
Mn	314840.44 ± 4064.599	44406.25 ± 0	47718.71 ± 5818.470	35636.27 ± 8137.233
Fe	6.6717353 ± 1.371474	1480000 ± 0	5.0076905 ± 1.206255	6.2448436 ± 1.571914
Ni	.0024926 ± .00152022	7.0480000 ± 0	.0030952 ± .00057634	.0419944 ± .526597
Cu	.0011912 ± .00086508	.0020000 ± 0	.0010952 ± .00029710	.0011732 ± .00077035
Zn	.0131103 ± .00296566	.0130000 ± 0	.0107143 + .00185164	.0125475 ± .00291485
Rb	.0023897 ± .00062269	.0030000 ± 0	.0021905 ± .00039744	.0023464 ± .00058312
Sr	.0401985 ± .00783801	.0500000 ± 0	.0413333 ± .00890784	.0405196 ± .00810004
Y	.0033603 ± .00060458	.0040000 ±0	.0030476 ± .00037950	.0032905 ± .00057521
Zr	.0181765 ± .00458804	.0190000 ± 0	.0154762 ± .00406795	.0175475 ± .00459381
Nb	.0031912 + .00182377	.0040000 + 0	.0029048 + .00069175	.0031285 + .00162848

Principal Components Analysis

Multivariate analysis provides a potentially useful set of tools for grouping items together and specifying links between variables, and it can reveal patterning percent in the data that may otherwise fail to emerge (Shennan 1988). Principal component analysis (PCA) is an exploratory tool used to define variation within a population (Johnson 2005) and is used when the number of groups within the data is unknown. This method conflates the data produced by EDXRF and represents the variability of the sample population with a minimal number of scores. Principal component scores are generated to represent the variance within the sample population (Johnson 2005). Factor scores from a PCA are used to determine if the appropriate amount of data is describe in the first two PCA scores; eigenvalues greater than 70% are generally accepted (Baxter

1994). Components 1 and 2 of Fatumafuti sample explained 60.006 % of the variation within the data (Table 4.12).

Table 4.12 Principal Component Scores.

Total Variance Explained Initial Eigenvalues			
Component	**Total**	**% of Variance**	**Cumulative %**
1	5.888	34.643	34.634
2	4.313	25.372	60.006
3	1.924	11.422	71.427

The regression factors from components 1 and 2 were plotted against the 3 clusters defined in K-means (Figure 4.18). Some separation is seen, although tight group clusters are not demonstrated.

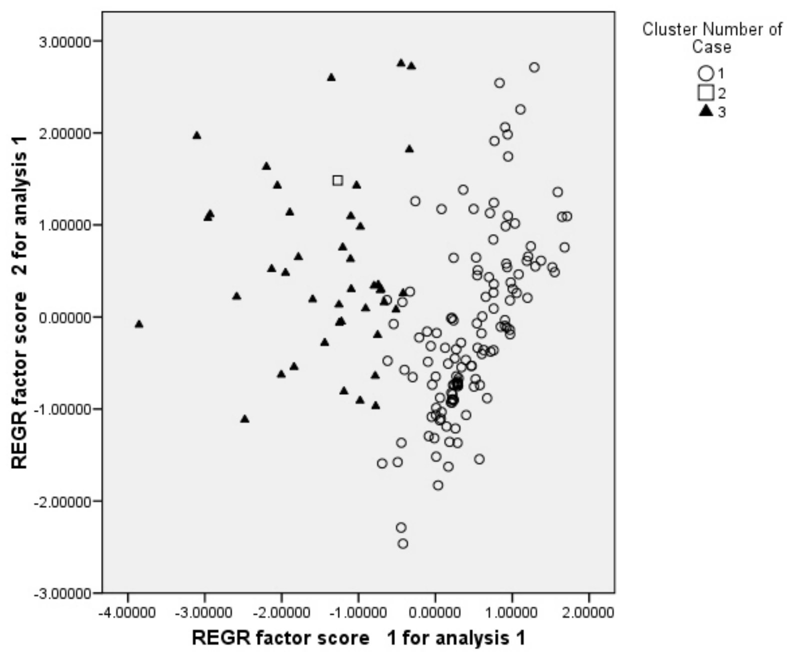

Figure 4.18 Principal Component Bivariate Plot.

Biplots

Bivariate plots of the EDXRF elemental concentrations were employed to further explore patterning in the data. The elements with the most amount of variation were identified and those that display the most amount of separation are presented below (Figures 4.19-4.21). In Figure 4.19 Mg is plotted against Fe. Differing amounts of Mg is reflected the variation of clusters 2 and 3; however, cluster 1 is an outlier because of its high nickel content; it consists of one flake, and in this case has low amounts of Fe. In biplot b, calcium oxide presents good separation when plotted against the major elements with the most variation. Figure 4.19b helps to convey the varying amounts Ca and Ti. While these biplots (Figure 4.19) do not demonstrate tight cluster membership, they reveal the underlying elemental variation which may suggest either a change in material selection or internal variability within the geologic source.

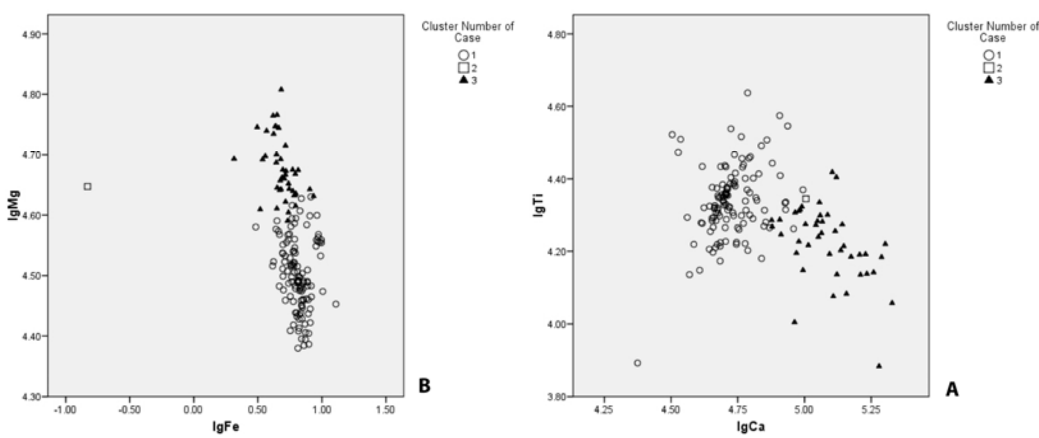

Figure 4.19 EDXRF bivariate plots of Mg/Fe and Ti/Ca (ppm).

Aluminum is the second highest element in all of the clusters, and caused a lot of the variation in Figure 4.20. Plotting manganese and magnesium indicates that the variation in this case is driven by magnesium, and in general the samples contain a very low amount of manganese.

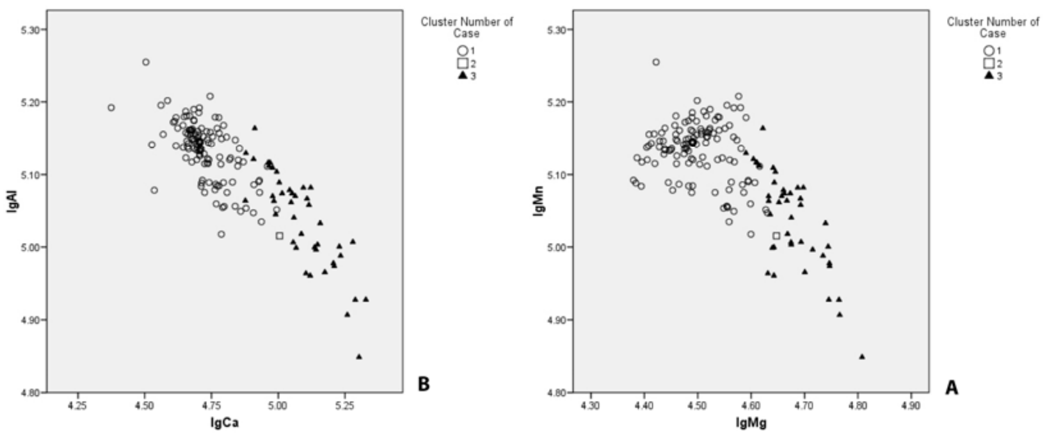

Figure 4.20 EXDRF Bivariate plot of Al/ Ca and Mn/Mg (ppm).

Statistical exploration identified several problematic elements; for instance, Cu, Ni, Zn, Rb, Y, Zr and Sr did not produce useful results. The only two analytes that could be used in a biplot which that did not require oxide-element conversion were vanadium and iron. Figure 4.21 shows no substantial differentiation of these elements, particularly when compared to the elements that were converted from oxides. Several outliers are present as clusters are loosely grouped and discrete separation between clusters is absent; this includes cluster 2 which contains a higher amount of Ni than the other clusters.

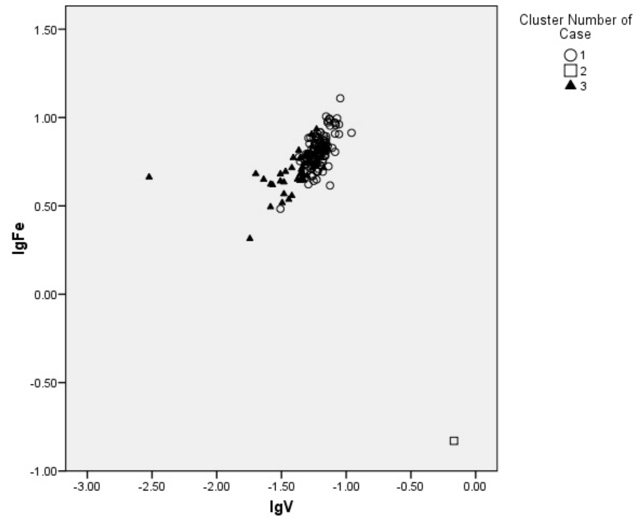

Figure 4.21 Biplot of Fe/V (ppm).

To summarize, separation was seen between two groups and appears to driven by variations in the amount of Mg, Al, Si, Ca, Fe and to a lesser extent K and Ti. While these two groups do not cluster tightly, they may represent at least two separate sources of basalt that was utilized by the inhabitants of Fatumafuti. I then explored differences in these two groups across space and time.

Patterns over Space and Across Time

Elemental concentrations were examined across space to provide information on the distribution of basalt material across the site. Elemental variation was compared by unit; results convey slight differences in element frequencies from the talus slope the coastal area (Figure 4.22b). Basalt from unit 1 contained higher amounts of magnesium and calcium compared to unit 2.

A change in elemental patterns over time is explored to determine if material selection strategies differed between the younger (unit 2) and older (unit 1) assemblages.

Additionally, individual layers were examined to identify whether internal variation existed within these two assemblages (unit 1 and 2). As mentioned above, the material recovered from unit 1 contained higher amounts of magnesium and calcium; this is supported by the elemental signatures of the individual layers (Figure 4.22a).

While element groups do not form tight clusters, differences in the amount of magnesium and calcium is seen between units. These results suggest there was a change in basalt resources over space and across time. On that basis, a shift in material strategies may have occurred, either by one social group or different social groups collecting from different sources. These results are discussed further in the next chapter.

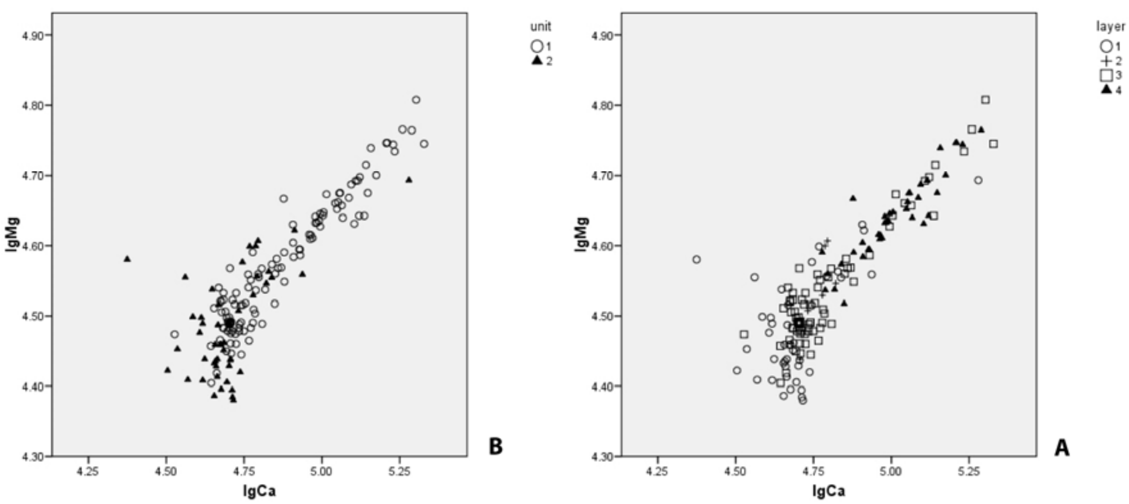

Figure 4.22 Biplots of Mg/Ca (ppm) for and layers.

Fatumafuti and Known Quarry Information

Johnson's (in press, 2009) EDXRF concentrations from Alega, Asiapa, Lau'agae and Tataga-matau (Figure 4.23) are compared to Fatumafuti to determine if material being used can be sourced to a quarry. As mentioned in Chapter III, establishing the location of basalt extraction sites is useful because in the Samoan *fono,* the titled person controls the accumulation and redistribution of strategic resources. Basalt sources located beyond the village of Fatumafuti would most likely be controlled by another *fono*, suggesting that a differential access to desired basalt sources may have existed.

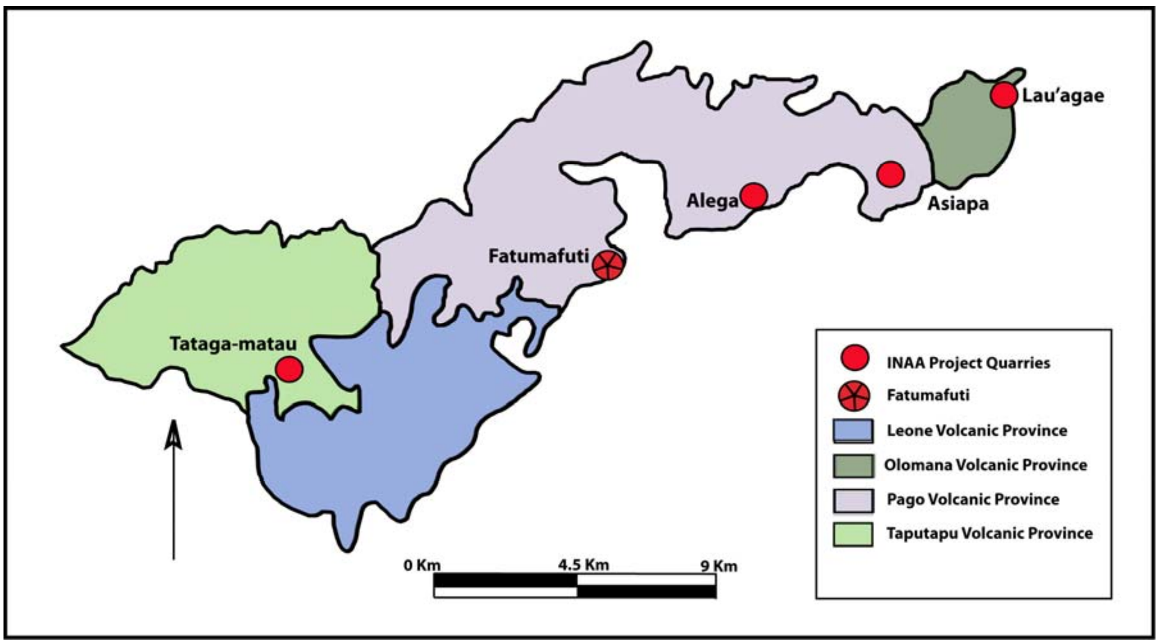

Figure 4.23 Location of basalt sources on Tutuila.

Concentrations for Ti/Mg and Ti/Ca displayed separation between all four locations; however, the Pago volcanic provenance displayed the least amount of internal cohesion (Figure 4.24). Overall, there is clear differentiation across and within intra-group volcanic provenances (Johnson in press, 2009).

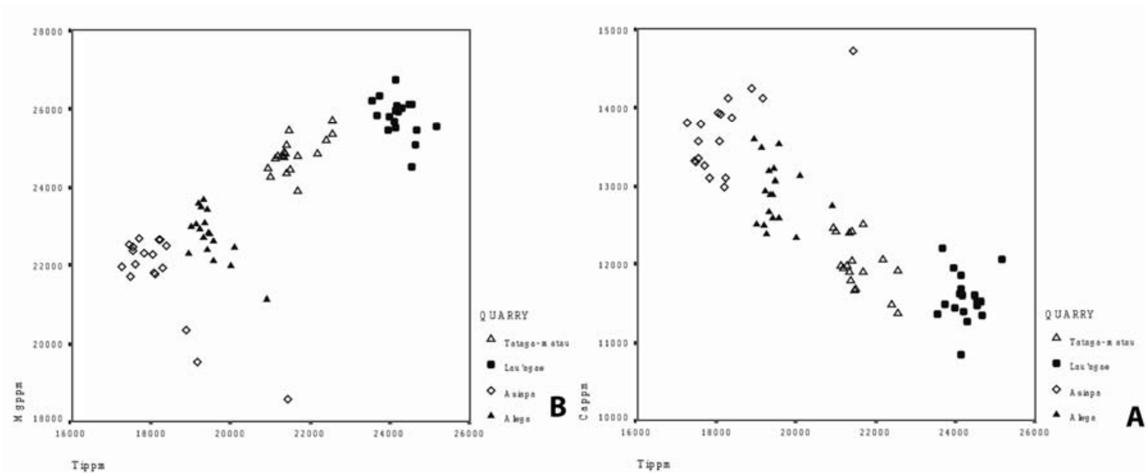

Figure 4.24 Biplots from the four extraction locations sampled by Johnson (2005).

A biplot of the first two principal component scores revealed a noticeable amount of inter-group separation and intra-group cohesion of clusters (Figure 4.25), especially when compared to Fatumafuti's PCA results. The first two principal component scores for Johnson's (in press, 2009) dataset explains over 71% of the total variability. Eigenvalues greater than 70% are generally accepted (Baxter 1994); therefore, compared to Fatumafuti's eigenvalues (60%), Johnson's (in press, 2009) scores better explain his data.

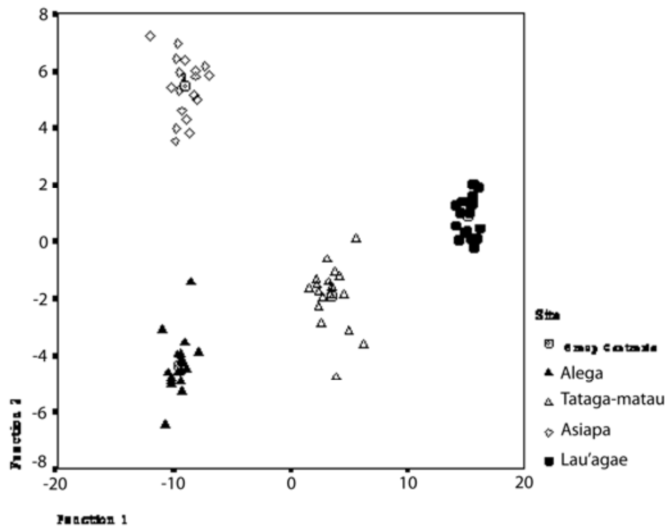

Figure 4.25 PCA plot of the four extraction locations.

Both datasets are combined for a direct comparison. In biplot 4.26b, principal components scores are grouped by cluster. The Fatumafuti data, identified as cluster 3, exhibits clear separation between Johnson's (in press, 2009) source data (clusters 1 and 2). Examining the combined data on the site level required an additional biplot (Figure 4.26a), which indicates that the Fatumafuti data (site 1) is distinct from Tataga-matau, Lau'agae, Asiapa and Alega (site 2-5).

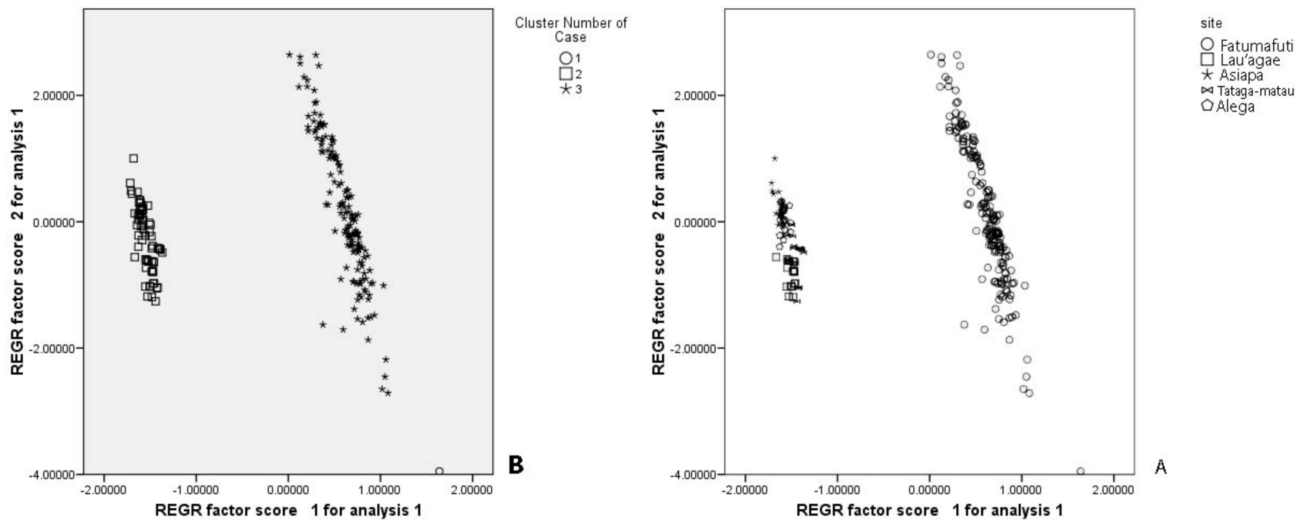

Figure 4.26 PCA biplot of combined dataset by cluster and site.

The datasets were then examined using a biplot of Ti/Mg. Figure 4.27a shows a clear separation of Tataga-matau, Lau'agae, Asiapa and Alega clusters. When the Fatumafuti dataset is incorporated (Figure4.27b), the clusters representing Tataga-matau, Lau'agae, Asiapa and Alega are compressed into one group and are separate from Fatumafuti. The datasets are shown to be chemically dissimilar, indicating that the source material used at Fatumafuti during 1050 and 520 BP did not come from Tataga-matau, Lau'agae, Asiapa and Alega. These results are interesting; however, they require further investigation to ensure that they are indeed reflective of past behaviors and not the product of a statistical error. For instance, an error in the conversion of oxides to elements may produce false elemental variation, which could potentially be interpreted as differences in material selection.

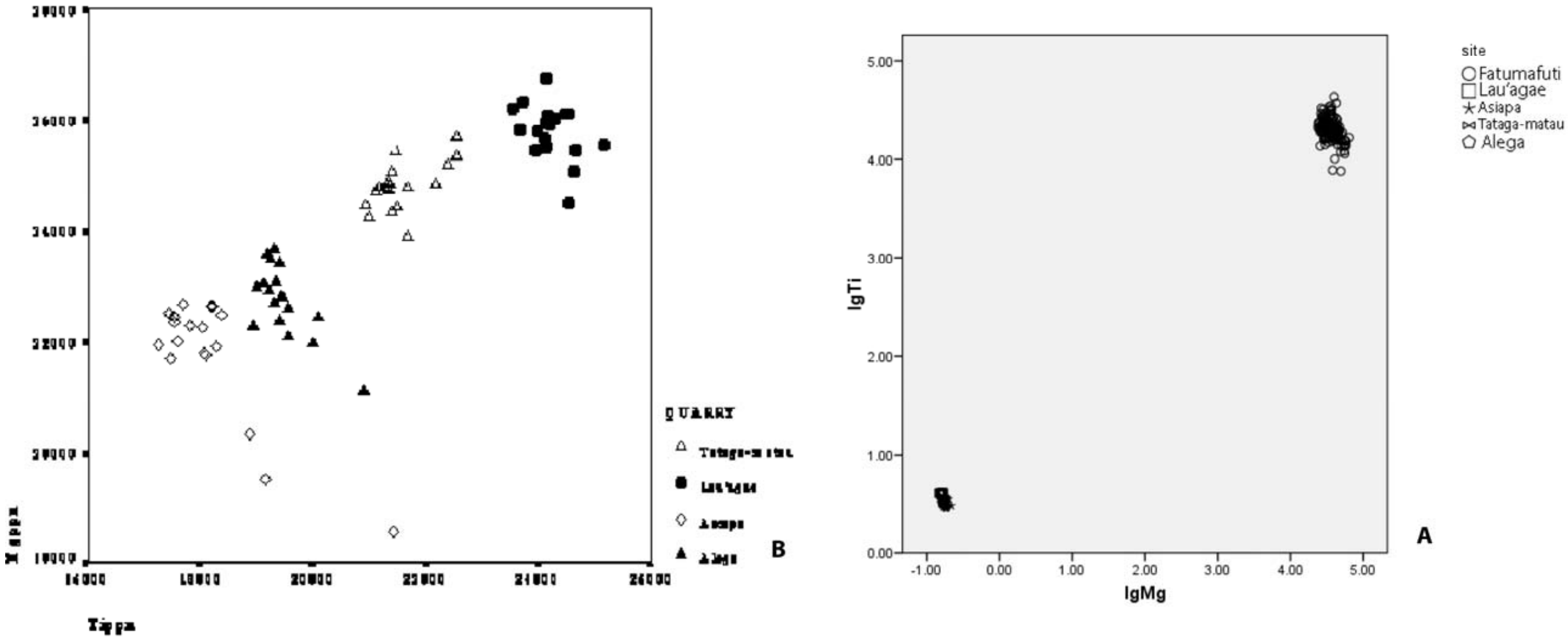

Figure 4.27 Combined dataset bivariate plot of Ti/Mg concentrations.

To explore the results from Figure 4.27b further a biplot of the two elements that did not require oxide conversion is examined (4.28). Here, Fatumafuti remains distinct from Tataga-matau, Lau'agae, Asiapa and Alega; however, the degree separation between the Fatumafuti cluster and those of the four other sources is reduced. Both datasets present tightly grouped clusters; though the elemental signatures from the four source areas compared show a tighter group affiliation while Fatumafuti is more loosely clustered with several outliers.

These findings demonstrate that the Fatumafuti material was not from the four source areas tested by Johnson (in press, 2009). There is no evidence at this time to suggest that the inhabitants of Fatumafuti had unequal access to the basalt resources from Tataga-matau, Lau'agae, Asiapa and Alega. It is possible that the site's inhabitants used locally procured resources.

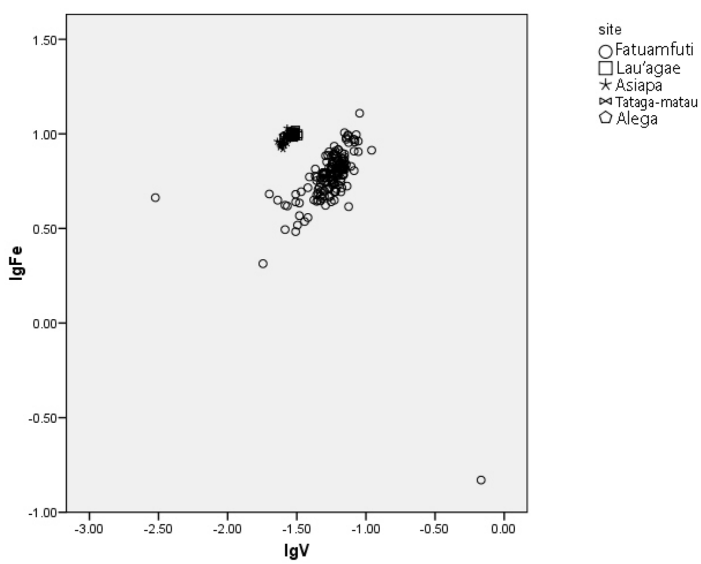

Figure 4.28 Combined dataset bivariate plot of four extraction locations (Fe/V) by site.

Summary

It appears that the inhabitants of Fatumafuti used one or two different basalt sources. Concentrations of all the analytes reported were converted from oxides to elements. Differences in cluster patterns for elements that required oxide conversion and those that did not are seen in Figures 4.19, 4.20, 4.21, 4.27 and 4.28. The only two elements that did not require oxide conversion displayed little variation between clusters and tighter group cohesion, which potentially suggest that one basalt source was used. However; elements that underwent oxide conversion demonstrate more chemical variation and less cohesive clusters, which potentially supports the use of two basalt sources. A K-means cluster analysis identified two major clusters and one small cluster that consisted of one flake and high amounts of nickel. Biplot results indicated that elemental separation did not display tight cohesion within clusters and good differentiation between clusters (Figure 4.18, 4.19, 4.20 and 4.22). Elemental concentrations from Fatumafuti were compared to Tataga-matau, Lau'agae, Asiapa and Alega. Results show that the basalt used at Fatumafuti did not come from the four sites tested by Johnson (in press, 2009) and it is probable that local resources were selected for.

I have some reservations about the degree of precision achieved using non-destructive XRF that was calibrated with pelletized samples to analyze flakes. Lundblad and colleagues (2008) report that non-destructive EDXRF can be used to compare Polynesian basalt artifacts (from the big island of Hawai'i) to pelletized standards without a in a loss of precision; however, there is much more to be considered when using a non-destructive method such as EDXRF such as sample size, flake convexity/concavity and the differing environment of Hawai’i and Tutuila.

Chapter Summary

This chapter presented the results of the attribute and geochemical analyses. The goal of these analyses was to identify whether meaningful patterns were present in the data. Patterns in the lithic and EDXRF data may reflect past behaviors such as technological strategies and material selection.

The results of the debitage analysis indicated that on average unit 1 contained larger, more complete flakes than unit 2. Dorsal scar counts indicated that unit 2 contained flakes with slightly more dorsal scars. Both units had a high percentage of flat and complex platforms; however, flat platforms were more numerous. Platform types and dorsal counts indicate that middle to late stage tool reduction occurred. A small number of tools were recovered, yet unit 1 contained more scrapers and expedient tools. The large amount of flat platforms and presence of used scrapers suggest that scraper production and curation occurred at the site as well.

I employed EDXRF to identify the number of sources used at Fatumafuti. First, I introduced the data using bivariate and multivariate statistical analyses to identify elements that were most influential in causing variation. Second, EDXRF concentrations from Fatumafuti were compared to Johnson’s (in press 2009) EDXRF analysis of geologic resource provenance sites (Tataga-matau, Lau’agae, Asiapa and Alega) to determine if elemental similarities exist. Results indicate that one, possibly two, sources were used and these were not chemically similar to the samples from Tataga-matau, Lau’agae, Asiapa and Alega.

CHAPTER V

CONCLUSIONS

The goal of this thesis has been to clarify the nature of tool production at Fatumafuti. To do this, I proposed four research questions (see Chapter I). What is the stage of reduction (chaîne opératoire) at Fatumafuti? Does the assemblage vary over space and time? What was the organization of lithic craft production? Specifically, is there evidence for lithic craft specialization? And where did the source material come from?

Specialization can be expected in societies where natural resources are unevenly distributed (Brumfiel and Earle 1987). Winterhoff suggested that during the Traditional Samoa period (~1700-250 BP), competitive Tutuilan chiefs controlled the distribution of adzes manufactured within community lands by means of negative reciprocity for inter-archipelago exchange (Winterhoff 2007) to maintain their status, prestige and chiefly line. The results of this thesis provide additional information to the anthropological literature of this time period, specifically, the transition of the ceramic periods to an era of monumental architecture, and the developing socioeconomic complexity that may have accompanied these cultural transformations.

QUESTION 1: STAGE OF REDUCTION

In conclusion to question 1, Fatumafuti can be best characterized as having contained multiple segments in the technical sequence of tool manufacture. The two major segments present are middle-stage and late-stage reduction, and two minor segments are early stage reduction and tool rejuvenation. The presence of early stage reduction is established from the occurrence of flakes with two or less dorsal scars, flat platforms, adze thinning flakes, one tool blank and one preform. The high percentage of late stage-dorsal scars and complex platforms support my conclusion that the dominant activity was mid-late-stage tool reduction. Site function is deduced from the adzes, scrapers and debitage recovered from the excavations.

A broad range of tools were manufactured at Fatumafuti which indicate that a specific tool kit was not present. Therefore, the needs of the people were general. Adzes were used for tree felling, house building and horticultural work, while scrapers were used for processing food (i.e., coconut scraping); therefore, there was a reliance on horticulture as well as marine life, which is supported by the large shell midden found in units 1 and 3 (Cleghorn et al 2005). Expedient tools found on site indicated that prehistoric groups did not rely on a completely curated technology. Expediently used tools at Fatumafuti were modified on multiple edges and on both faces (dorsal/ventral). Expedient tool use may have been opportunistic; a flake is produced as a byproduct of tool manufacture and then used to preform a task. Additionally, access to raw material may not have been a limiting factor, allowing people to be less economical with their resource. Raw material access will be discussed later in this chapter.

Polished flakes indicate that tool curation occurred. In addition, exhausted tools and the reduction sequence expressed in the debitage all suggest that tools were produced, used and repeatedly brought back to the site for repair. A picture begins to emerge of a group of people living in a coastal village making tools, which are manufactured for different tasks, near their residence to aid them in the daily job of ensuring the subsistence of the community. Every morning people wake up and tend to their taro, clear more land for crops, chop down trees for the construction of houses and/or boats, fish the reef and collect and process food and supplies for the weekly *umu.* At the end of the day, if their tools are worn they go back to the area where the tools were made and repair them.

QUESTION 2: VARIABILITY OVER SPACE AND TIME

I concur with Cleghorn and colleagues (2005) conclusion that the coastal portion of the site was more intensely used than the inland portion. A change in production over time and across space was demonstrated through the variation of attribute frequencies between these two units. Spatial and temporal differences indicate that two separate areas of the site were used at different times and did not overlap chronologically. The coastal portion (unit 1) was utilized during Aceramic (i.e. the "dark ages," 1700-1000 BP) and the monumental building periods (1000-250 BP), while the inland area (unit 2) dates to the monumental building period.

During the earlier period of occupation (unit 1, 1050-790 BP), people utilized the coastal area as opposed to the inland area. The results of the debitage analysis indicate that people were selecting larger basalt cobbles and/or tabs for tool manufacture. In addition, geochemical results reveal that the basalt in unit 1 contained higher levels of magnesium and calcium than the basalt in unit 2. These findings reveal that during the older component, people procured basalt from a different source and brought it to the coastal portion of Fatumafuti for manufacture. Differences in the frequencies of specific attributes highlight the chronological and spatial differences in both assemblages. A change in reduction strategies (i.e., a change in behavior) from the older to younger components is evident from the differences between expected and observed counts of dorsal scars and platform types.

Both time periods show evidence of tool manufacture, rejuvenation and discard; however, the older period revealed a reliance on marine resources which added an additionally component to the unit. The large shell midden in units 1 and 3 allow for broader interpretations of site function and diet breadth between 1050 and 790 BP. The absence of shell middens that date to the younger period is potentially a result of sample bias. The difference in debitage density between units 1 and 2 could indicate that tool manufacture was more intense on the coastal portion during the older period, yet since the younger component was used for a shorter period it seems more reasonable that there was less time for debitage to accumulate. However, burials found around units 1 and 3 infer that this was an area that people were connected to (spiritually) and invested in. Loved ones placed in the ground could indicate that this was a permanent location for the residence of Fatumafuti where people lived, worked and died.

Behaviors associated with the later period (660-520 BP) located at the inland portion of the site revealed a slightly earlier stage of reduction, with less debitage density and less tool diversity. There is a larger presence of flat platforms compared to the older coastal period, which is consistent with the higher frequencies of fewer dorsal scars. This pattern implies that more scrapers may have been manufactured here, yet there are fewer scrapers found in unit 2 compared to unit 1. However, the absence of scrapers in the light of the debitage results does not discount for their presence in the younger assemblage. In all probability, people removed the tools from these locations (units 1 and 2) and used and discarded them elsewhere.

Based on my results it appears that a shift in material collection and tool reduction strategies occurred between the older and younger assemblages, suggesting that the needs of Fatumafuti's residents changed in some way. Such a change would require adjustments in the decisions made during tool production and possibly material selection. The assemblages from units 1 and 2 share similarities both temporally and spatially, yet differences are revealed in the function of these two time periods/areas. Tool production at the base of the talus slope occurred for approximately 100 years (650-520 BP) representing a shorter duration of use where less manufacture occurred. People may have been less attached or invested in this particular area of Fatumafuti as there are fewer components (burials and shell midden); therefore it was used for a brief duration of time.

The results of my analyses imply that individuals using the coastal portion of Fatumafuti had a slightly different agenda than the people using the inland portion during the younger period; alternatively, they went about accomplishing the same tasks in a different manner. Tool production and material extraction could have been carried out by one social group during both the younger and older periods; with the archaeological record a reflecting a change in the group's requirements. Otherwise, a different social group with a different set of needs could have utilized the area near the base of the talus slope at a later period in time; basalt was collected from a different source and different reduction strategies were employed to meet the needs of the group.

QUESTION 3: MATERIAL SOURCE(S)

The goal associated with question 3 was to obtain elemental signatures of the basalt used at Fatumafuti and to identify if differentiation *between* and cohesion *within* elemental groups existed. Elemental concentrations from Fatumafuti were compared to the elemental concentrations obtained by Johnson (in press, 2009) from Tataga-matau, Lau‘agae, Asiapa and Alega to determine if elemental similarities exist between both datasets. An overlap in element concentrations between Fatumafuti and one or more of Johnson's (in press, 2009) sites would suggest that those samples are from the same volcanic province.

The results of this analysis indicate that there are some potential methodological problems to explore; however, At least two sources were used at Fatumafuti and these are chemically distinct from Johnson's (in press, 2009) sources, Tataga-matau, Lau'agae, Asiapa and Alega. Translated into past behavior, this information suggests that the people of Fatumafuti were not using these inter-valley basalt sources during the period between 1050-520 BP. Therefore, at the end of the Aceramic period and the onset of the Recent (i.e. Monumental Building) period, basalt extraction at Fatumafuti was either relegated to the local (valley) level, or was obtained from an extraction area that has not been sampled. This is potentially significant as the intensity of tool production and use of major extraction sites began to pick up during the Traditional

Samoa period (Recent and Historic periods, 1000 BP-Present), as inter-valley, inter-island and inter-archipelago distribution of adzes has been recorded (Best et al. 1992; Di Piazza and Pearthree 2001; Weisler and Kirch 1996; Weisler 1998). The results from Fatumafuti present one case in which a reliance on these major source areas has not been established, and therefore this particular portion of Fatumafuti was not occupied at a time when adze manufacture was a part of an intense form of craft production.

A few caveats should be discussed. The work of Lundblad and colleagues (2008) and Mills and colleagues (2008) have confidently established that non-destructive EDXRF of non-pelletized Polynesian basalt flakes can be analyzed using a method established with pelletized samples. Additionally, Lundblad and colleagues (2008) posit that post-depositional weathering and sample thickness does not skew the EDXRF results. However, there are a few points that should be taken into consideration when using non-destructive EDXRF on Polynesian basalts, (Tutuilan basalts in specific). First, Lundblad and colleagues (2008) report a size limitation for artifacts in the range from 10 mm in diameter for the mid-Z elements to 25 mm for the light major elements. Therefore, samples in my analysis that did not completely cover the detector field of view during analysis may have resulted in a deviation from original element concentrations in the case of sensitive elements.

Secondly, varying degrees of flake convexity and concavity may significantly influence the size constraints and surface conditions acceptable for analysis (Lundblad et al. 2008). Flakes would have to be pelletized to ensure they are flat and big enough to completely cover the detector field of view while being small enough to allow room for other artifacts. Lastly, Lundblad and colleagues (2008) analysis of weathering characteristics was based on basalt flakes from the Mauna Kea adze quarry located at an extreme altitude (3,800 m) near the summit of Hawaii's tallest mountain (Mills et al. 2008). Mauna Kea is typified by mildly acidic weathering conditions, and is located in an area that is often covered in snow during the winter months (Lundblad et al 2008; Mills et al. 2008). These environmental conditions may be significant as Johnson's (in press 2009) method for Tutuilan basalt was adapted from Lundblad et al.'s (2008) method. Tutuila is an exceptionally humid and moist environment with highly acidic soil and a high amount of chemical weathering. Differences in these environmental conditions and the degree to which this affects the precision of the analysis will need to be explored more thoroughly.

QUESTION 4: LITHIC CRAFT PRODUCTION

The goal of question four was to define the nature of lithic craft production at Fatumafuti; specifically, if evidence exists for lithic craft specialization. To answer this question I employed four indicators of specialization, adapted from a model proposed by Arnold (1984). Taken as a whole, these indicators provide a basis for which I may measure the type of lithic production that occurred at Fatumafuti from 1050-520 BP.

Relative and Absolute Volume of Stone Tool Production Methods

In defining what is meant by a large volume of lithic debris, I initially turned to literature dealing with lithic quarries and workshops. These report the lithic debris at sites such as

Colha, Mauna Kea, and Tataga-matau ranging in sample size of hundreds of thousands. So, I turned Winterhoff's (2007) density calculations from 13 different sites on Tutuila (Figure 5.2) to try to understand how Fatumafuti compares to other lithic bearing sites. I expect that if Fatumafuti is a lithic workshop then density calculations should not fall below Auto.

Winterhoff's (2007) data were not available for a direct comparison; therefore I compare my results to the density ranges in Figure 5.1. Density calculations from Fatumafuti fall at the far left of Figure 5.1, from Aoa to Fatumafuti. Therefore, these calculations do not suggest that a large absolute volume of lithic debris was recovered from the 2004 excavation by Cleghorn and colleagues (2005). I should mention that Winterhoff's (2007) Fatumafuti dataset is not analyzed in this thesis, as his data were the result of a separate project conducted by a different principal investigator, as more than one excavation within this valley has been conducted.

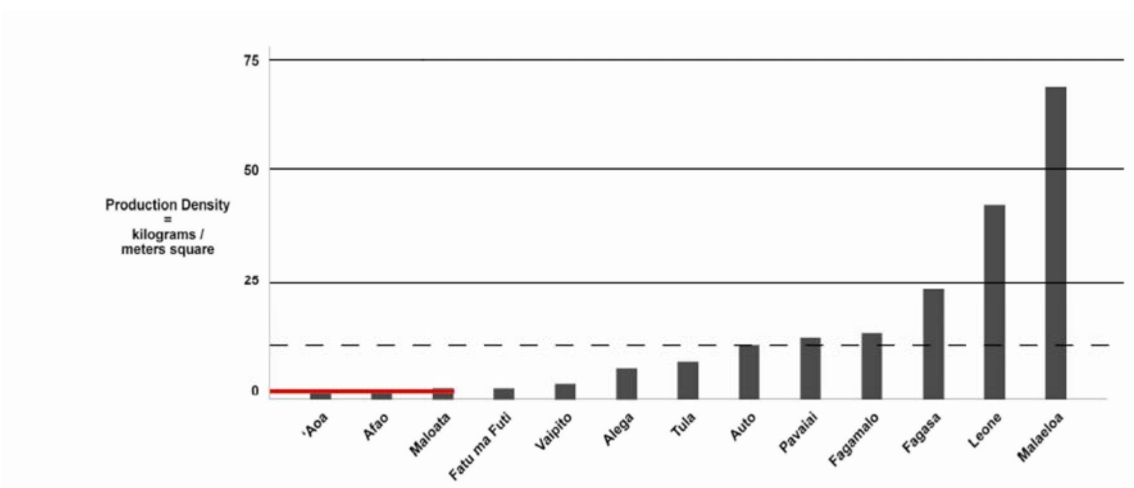

Figure 5.1 Tutuila's lithic assemblage production calculations (Winterhoff 2007).

In summary, while units 1 and 2 yielded an abundant amount of flakes and further excavation could reveal that the extent of this debris is more massive than is indicated here, this area could also represent a location where a handful of tools were made and reworked during the long period of occupation. The radiocarbon dates indicate that this site was utilized for over 400 years. As such, I conclude that the density of artifacts and number of flakes is not suggestive of an intensely used lithic workshop.

Standardization in Tool Production Methods

Standardization refers to consistency of a controlled and specialized system of production which reflects a highly regularized decision making procedure (Arnold 1984). A result of standardized behavior is that raw materials and manufactured items will fall within a limited range of variability. Routinization of production is explored using three variables, the diversity of tools produced at the site, the presence of adze thinning flakes greater than ~30-40 mm in length and width, the amount of flakes with simple attributes and flake detachment skill.

According to Winterhoff (2007), tool makers specialize in producing certain types of products at different production centers as a means of increasing efficiency. The production of one type of adze requires less training and will allows the specialist to focus on perfecting a set of skills in order to increase manufacturing efficiency. To determine the degree of variability and flake detachment control at Mauna Kea adze quarry, Cleghorn (1986) divided flake length by striking platform thickness. He assumed that flakes with thinner platforms compared to overall length reflect greater control and skill than those with thicker platforms. A ratio of 6:1 meant that the flake's length is six times greater than the platform thickness. A low ratio of 0:1 indicates the striking platform is thicker than the flake length. Cleghorn (1986) concluded that his data, from four different locations at Mauna Kea (6:1, 5:1, 6:1 and 7:1), suggested that considerable skill was exercised in the detachment of flakes.

My results suggest that of the tools found at Fatumafuti, there are a number of different tool types. One quadrangular adze preform, one tool blank, an exhausted triangular adze, several scrapers and expedient flake tools are all found. Using Cleghorn's (1986) method of calculating the skill of flake detachment, I determined that flake length to striking platform ratio for layers 1-III and 1-IV is 6:1 and 5.5:1 and in layers 2-I and 2-II was 5:1 and 5.5:1. The percentage of adze thinning flakes in each layer is as follows: layer 2-I = 3.5%, layer 2-II = 0.94%, layer 1-III = 5.76 %, and layer 1-IV = 3.9%. Therefore, 1.8% of the flakes in Unit 2 and 4.8% of the flakes in Unit 1 have been identified as adze thinning flakes. The small number of adze thinning flakes in combination with the lack of flakes exhibiting flat platforms and two or fewer dorsal scars indicates that tool production methods were not part of a routine standardized system. However, the flake length and platform thickness ratios indicate that tool manufacturers at Fatumafuti were skilled knappers, although this alone does not support specialized.

Repeated, Intensive Use of Well Defined Activity Areas

This indicator presented some difficulty as only two units were analyzed. Therefore, my goal was to determine if well defined activity areas were present at Fatumafuti through the degree of flake concentrations between units 1 and 2. Differences in flake density between the older and younger periods (units 1 and 2), and the layers within them, may reflect patterns of more or less commitment to, or investment in, one area over the other; however, a site boundary cannot be established at this time.

In addition to the presence of burials and a large shell midden, the attribute results and flake densities, indicate that the coastal portion was used repeatedly. The inferred site activities imply that people felt fairly committed to this location; friends and/or family members were laid to rest, marine resources were collected and processed, and tools were manufactured and reworked. However, activities at the base of the talus slope (unit 2) were not as extensive as the older period.

Along with differences in unit composition, I use the location of the site and the presence or absence of defensive structures to determine if a well defined activity area was present. Workshops used by attached specialists would be located in a relatively isolated part of the valley near some sort of defensive feature (see Chapter III), and would contain a dense concentration of adze cores, preforms, tool rejects, hammer stones and debitage. Alternatively, independent production (specialized or otherwise) would not be restricted to one specific isolated area in relation to defensive features. However; a dense concentration of adze cores, preforms and hammer stones is not present. Additionally, there has been no reported evidence for defensive structures (Cleghorn et al. 2005), and the site is located in the coastal portion of the valley, opposed to being tucked away in the valley. Therefore, the use of these two areas was repeated; however, they are not well defined, nor do I feel confident stating that it was intense. Instead Fatumafuti is beginning to emerge as place of independent production.

Evidence of Control over Critical Stone Resources

To address this indicator I employed EDXRF to chemically characterize the basalt found at the site. My goal was to determine if discrete clusters grouped in such a way that the number of extraction sites used could be identified. The results of this study indicate that some ambiguity is present in the data that requires further analysis; however, I am able to conclude at this time that at least two basalt sources were utilized, and that these are not chemically similar to the major sources of Tataga-matau, Lau'agae, Asiapa and Alega. Using both oxide converted elements, as well as elements that did not require further conversion, a distinct separation between Fatumafuti and the four source areas are demonstrated. This suggests that residents were possibly using local resources rather than the finer grained basalts at Tataga-matau; however, it is impossible to evaluate whether these resources were controlled.

Summary of Craft Production

Using a model adapted from Arnold (1984) I analyzed four parameters of specialized lithic production. I employed this model as an example of possible archaeological patterns and criteria that can be examine. While I recognize that Fatumafuti lacks some of the archaeological indicators used by Arnold (1984), taken as a whole, I feel that the four indicators used in this study adequately examine the nature of craft production at Fatumafuti.

The results of my study suggest that Fatumafuti was not an attached nucleated workshop geared toward the production of a limited tool form for the distribution beyond the valley and possibly the island. Fatumafuti lacks the large amount of early stage flakes, *foagas*, hammerstones and tool-rejects that characterize of lithic workshops. Flake densities are low, the presence of adze thinning flakes is low, support is lacking for a standardized production method, and control over a resource area cannot be demonstrated. Rather, this was an independent work area where tools were most likely manufactured for the group's needs, removed from the area and used for horticulture or domestic activities, and traded for other goods when necessary.

Building upon previous findings (Arnold 1984; Costin 1991; Kahn 1996; Winterhoff 2007) and the information presented here, I posit that the nature of craft production at Fatumafuti during the end of the Aceramic period can be characterized as independent household production. This is consistent with Winterhoff's findings for the Traditional Samoa period (AD 300-1722 or 1650-230 BP) which roughly overlaps the Aceramic and Monumental Building period (2500-1000 BP), as he characterizes sites like Fatumafuti as independent production sites occupied by part-time producers at dispersed households (Winterhoff 2007).

CONCLUSION SUMMARY

The goal of this thesis has been to clarify the nature tool production at the Fatumafuti site and to elaborate on cultural activities that occurred at the coastal site of Fatumafuti, on Tutuila Island, approximately 500-1000 years ago. Cleghorn an colleagues (2005) states that stone tool manufacture occurred at Fatumafuti but the nature of tool production remains unclear. To investigate this I employed a lithic attribute and geochemical analysis of basalt waste flakes to answer four research questions. All of my results are presented as hypotheses that require further testing.

What is stage of reduction (chaîne opératoire) represented at the site? The stage of reduction at Fatumafuti can be best characterized as containing multiple segments in this technical sequence of tool manufacture. The two major segments present can be described as middle stage and late stage reduction, and two minor segments are early stage reduction and tool rejuvenation. Expedient tools found on site indicate that prehistoric groups did not rely on a completely curated technology.

Does the assemblage vary over space and time? Yes. The largest density of lithic debris is at the coastal portion of the site during the late component (1050-790 BP) and decreases in the earlier component (650-520 BP) in unit 2 located at the base of the talus slope. With this change in artifact density there is change in package size as larger material is seen in Unit 1 and smaller material in unit 2. While mid to late stage reduction was the dominant activity in both the early and late components of units 2 and 1, there is a slight shift from more complex platforms and flakes with three or more dorsal scars in unit 1, to a slightly lower frequency of these attributes in unit 2.

Where did the source material come from? At this point in time the location of the source material cannot be identified. However, at least two sources were used at Fatumafuti, and these do not match the elemental concentrations from Tataga-matau, Lau’agae, Asiapa and Alega.

What was the organization of lithic craft production? Specifically, is there evidence for lithic craft specialization? Fatumafuti represents an independent household production site that most likely relied on local basalt sources and produced tools that were needed by the community. The seemingly large amount of debitage can be attributed to the long period of occupation. There is no evidence to suggest that lithic craft specialization in the form of an attached nucleated workshop existed at Fatumafuti during 1050-520 BP.

The information provided here helps to move our understanding of Samoan prehistory forward as it provides information on a transitional period where lithic production is limited to the household, there is a reliance on horticulture as well as marine resources, and people were engaged in wood working and food processing. The current consensus for the cultural chronology of Western Polynesia is characterized by a regional progression from Early Eastern Lapita, through Polynesian plainware, the emergence of an Ancestral Polynesian society and then to the disappearance of pottery in the Aceramic period (Smith 2002). During the Recent period (1000-250 BP), large-scale construction of basalt architecture is attributed to the rise in complex chiefdoms which stemmed from growing populations and intensified food production. An increase in warfare (both intra and inter-island) is believed to have led to the construction of fortifications (Davidson 1979). The occupation of Fatumafuti is situated in the middle of this culture history.

The results obtained from my study of Fatumafuti present one case in which inter-valley basalt sources were not used from 1050-520 BP and tool production is not as intense as major production sites (i.e. Tataga-matau or Alega) during the peak of the Recent period. Either the intensification of lithic craft production seen during the height of complex chiefdoms is not seen at Fatumafuti, or these social transformations have not yet taken hold. With more cases that date to this time, we may find that Samoan chiefdoms have not attained full complexity at this point

Using EDXRF I tried establish the location of basalt extraction sites used at Fatumafuti. These results could have proved beneficial to the understanding of the development of complex chiefdoms as the titled person controls the accumulation and redistribution of strategic resources. These resources would then be exchanged for other goods and resources. Basalt outcrops located outside Fatumafuti's property boundary could suggest that a differential access to desired basalt sources existed, and a fee or service would be owed to those in control. The potential for differential access and economic control over critical resources is often the basis for the development of centralized power in complex societies (Arnold 1984). A chief's prestige is dependent on the successful production and redistribution of food and status goods. Therefore, the demands for status compel conscious and competitive chiefs to acquire goods for exchange, ritual obligations and the maintenance and aggrandizement of the chiefly line (Kirch 1984). The absence of basalt extraction sites outside of Fatumafuti should not be considered as insignificant information. This suggests that no such level of exchange, or unequal access to basalt resources existed at this time until proven otherwise. This may also speak to the development of the complex chiefdom that existed during the Recent period of Samoan history.

Not only does this study provide information for future studies in terms of lithic debitage analysis, but it also adds to the growing information on geochemical studies using non-destructive methods on Polynesian basalts. Past researchers have demonstrated long distance interaction and exchange on the valley, island and archipelago level (Best et al. 1992; Di Piazza and Pearthree 2001; Johnson et al. 2007; Weisler and Kirch 1996; Weisler 1998; Winterhoff 2007), as well as the effectiveness of non-destructive EDXRF on Polynesian basalts in terms of size, shape, and degree of chemical weathering. This thesis adds to growing work on geochemical analysis of stone artifacts in the Pacific. It is one of the first studies on Tutuila to use a non-destructive EDXRF method based on pelletized geologic samples to analyze non-pelletized basalt flakes. This study recognizes the potential for non-destructive analysis and calls for more research to be done specifically on Tutuilan basalts and the effects of chemically weathering and soil acidity that is attributed to that region.

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APPENDIX A

Artifact#	Unit LVLcm	Cond.	Comp.	Type	Cort.	DS	Term	Plat	Pol.	PTmm	PLmm	Length	Width	Weight
1-001-4b	130-50	1	0	3	0		4	2	0	6.96	28.18	48.39	35.03	15.52
1-002-4b	130-50	2	0	3	0		0	0	0	0	0	51.48	28.83	15.52
1-003-4b	130-50	1	1	3	0		4	2	0	8.05	29.16	27.18	42.37	12.48
1-004-4b	130-50	1	0	0	0		2	2	0	7.4	14.16	33.57	33.59	9.86
1-005-4b	130-50	1	1	3	0		4	2	0	10.47	19.18	45.85	27.57	16.98
1-006-4b	130-50	1	1	3	2		4	1	0	6.36	31.4	49.17	33.01	19.66
1-007-4b	130-50	1	1	0	0		4	3	0	6.6	24.4	28.86	25.85	6.00
1-008-4b	130-50	1	1	1	0		1	3	0	6.35	30.18	27.54	46.48	12.78
1-009-4b	130-50	1	0	0	0		0	2	0	2.82	8.33	35.89	23.83	6.16
1-010-4b	130-50	1	0	0	0		4	2	0	3.3	9.22	21.89	18.29	2.36
1-011-4b	130-50	2	0	0	0		2	7	0	0	0	24.42	19.64	2.54
1-012-4b	130-50	1	0	0	0		2	6	0	3.24	6.35	11.99	15.51	0.80
1-013-4b	130-50	1	0	0	0		2	3	0	6.98	23.23	26.39	35.8	9.28
1-014-4b	130-50	1	0	0	0		2	6	0	8.84	18.56	26.78	26.95	6.62
1-015-4b	130-50	2	0	5	0		4	7	0	0	0	48.43	23.77	15.74
1-016-4b	130-50	1	0	0	0	2	0	3	0	8.33	27.81	30.55	20.78	7.78
1-017-4b	130-50	1	1	3	0		4	2	0	8.41	41.49	28.54	52.63	16.38
1-018-4b	130-50	1	1	3	0		4	2	0	10.22	22.48	50.56	45.35	30.20
1-019-4b	130-50	1	1	3	0		4	3	0	8.17	30.9	60.44	65.78	30.36
1-020-4b	130-50	1	1	3	0		4	2	0	10.63	23.96	55.5	29.79	23.48
1-021-4b	130-50	1	1	3	0		4	2	0	2.4	8.95	51.54	53.08	28.70
1-022-4b	130-50	1	1	3	0		4	2	0	8.63	23.27	53.47	39.9	25.92
1-023-4b	130-50	1	1	3	0		4	2	0	13.06	27.46	41.55	51.61	22.36
1-024-4b	130-50	1	1	3	2		1	3	0	6.12	19.24	30.81	41.56	13.64
1-025-4b	130-50	1	0	3	0		2	2	0	6.35	29.77	37.07	42.04	14.06
1-026-4b	130-50	2	0	0	0		0	7	0	0	0	24.23	23.3	10.90
1-027-4b	130-50	1	1	0	0		2	3	0	8.09	24.35	33.62	27.54	8.30
1-028-4b	130-50	1	1	2	0		4	3	0	7.88	17.9	37.31	52.21	18.46
1-029-4b	130-50	1	0	0	0		2	2	0	3.58	16.88	24.35	23.33	3.36
1-030-4b	130-50	1	1	3	0		4	2	0	5.88	27.6	24.7	29.56	6.62

1-031-4b	130-50	1	1	3	0		4	3	0	6.26	20.22	31.08	35.42	9.52
1-032-4b	130-50	1	0	0	0		2	2	0	6.32	15.19	29.26	29.6	6.30
1-033-4b	130-50	2	0	0	0		4	7	0	0	0	26.53	30.19	5.54
1-034-4b	130-50	1	1	0	0		2	2	0	6.37	7.38	40.38	11.78	3.26
1-035-4b	130-50	1	1	1	0		1	2	0	6.04	22.09	27.43	44.21	11.54
1-036-4b	130-50	1	0	0	0		2	2	0	4.62	7.77	35.81	24.14	7.18
1-037-4b	130-50	3	0	0	0		0	7	0	0	0	0	0	2.18
1-038-4b	130-50	3	0	0	0		0	7	0	0	0	0	0	5.42
1-039-4b	130-50	1	1	0	1		1	3	0	9.64	21.06	25.33	20.82	3.94
1-040-4b	130-50	2	0	0	0	3	0	7	0	0	0	0	0	1.90
1-041-4b	130-50	3	0	0	0		0	7	0	0	0	0	0	0.72
1-042-4b	130-50	1	0	3	0		2	3	0	8.55	19.17	27.86	36.04	8.30
1-043-4b	130-50	2	0	0	0		0	7	0	0	0	0	0	3.36
1-044-4b	130-50	2	0	0	0		2	0	0	0	0	29.64	26.93	5.06
1-045-4b	130-50	1	1	3	0		1	3	0	8.6	31.88	30.09	32.23	9.76
1-046-4b	130-50	2	0	0	0		0	7	0	0	0	0	0	3.80
1-047-4b	130-50	1	1	0	2		2	3	0	5.59	11.85	21.13	26.26	4.00
1-048-4b	130-50	1	1	1	0		4	2	0	4.11	10.75	19.57	37.4	4.80
1-049-4b	130-50	1	0	0	0		2	6	0	0	0	19.11	26.71	2.56
1-050-4b	130-50	1	1	0	0		2	3	0	6.09	22.01	26.7	25.56	5.12
1-051-4b	130-50	2	0	0	0		4	7	0	0	0	28.74	36.68	9.40
1-052-4b	130-50	1	0	3	0		2	2	0	7.53	25.59	19.97	40.6	9.74
1-053-4b	130-50	1	1	1	0		1	3	0	5.14	15.43	27.06	44.96	7.62
1-054-4b	130-50	1	0	0	0		2	2	0	3.49	10.99	24.61	19.67	2.94
1-055-4b	130-50	2	0	0	0		4	7	0	0	0	22.41	33.79	4.72
1-056-4b	130-50	1	1	0	0		4	3	0	4.99	13.01	31.88	31.5	5.46
1-057-4b	130-50	2	0	0	0		0	7	0	0	0	32.64	30.57	6.32
1-058-4b	130-50	1	1	0	0		4	2	0	6.54	14.48	27.91	21	4.24
1-059-4b	130-50	1	0	0	0		2	3	0	6.61	18.79	27.28	23.27	4.84
1-060-4b	130-50	1	0	0	0		4	3	0	2.66	11.09	27.39	16.42	2.12
1-061-4b	130-50	2	0	0	0		4	7	0	0	0	15.82	19.34	1.80
1-062-4b	130-50	1	1	0	0		4	3	0	4.01	14.69	15.59	23.39	2.80
1-063-4b	130-50	1	0	0	0		2	2	0	6.13	12.38	18.11	13.35	2.12

1-064-4b	130-50	2	0	0	0		4	7	0	0	0	21.11	34.09	7.80
1-065-4b	130-50	1	1	0	2		4	3	0	2.55	17.2	16.01	37.06	3.74
1-066-4b	130-50	1	1	0	0		2	3	0	5.68	17.67	29.57	25.03	4.40
1-067-4b	130-50	2	0	0	0		4	6	0	0	0	18.3	28.41	3.54
1-068-4b	130-50	3	0	0	2		0	7	0	0	0	0	0	6.54
1-069-4b	130-50	1	0	0	0	6	2	3	0	2.34	9.8	9.55	16.84	0.44
1-070-4b	130-50	1	1	0	0		3	3	0	3.92	18.45	20.46	29.99	5.44
1-071-4b	130-50	3	0	0	0	6	0	7	7	7	7	7	7	0.64
1-072-4b	130-50	3	0	0	0		0	7	0	0	0	0	0	0.92
1-073-4b	130-50	1	0	0	2	2	2	2	0	4.67	10.67	10.77	19.95	0.98
1-074-4b	130-50	1	0	0	0	3	2	3	0	2.24	8.57	20.59	15.02	1.28
1-075-4b	130-50	1	0	0	0		2	3	0	4.19	13.08	26.35	31.34	4.58
1-076-4b	130-50	2	0	0	0		2	7	0	0	0	22.21	19.8	3.18
1-077-4b	130-50	1	1	3	0		4	3	0	5.47	16.87	20.1	31.46	4.02
1-078-4b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	1.02
1-079-4b	130-50	1	1	0	0		4	2	0	5.73	17.85	21.64	23.78	4.02
1-080-4b	130-50	1	0	0	0		2	2	0	7.51	17.13	28.14	23.4	4.86
1-081-4b	130-50	1	1	0	0	2	2	2	0	5.46	12.97	22.27	13.74	1.74
1-082-4b	130-50	1	1	1	1		1	6	0	6.7	9.45	27.77	46.02	14.54
1-083-4b	130-50	3	0	0	1		0	7	0	0	0	0	0	5.90
1-084-4b	130-50	1	0	3	2		2	3	0	4.24	9.46	28.69	26.9	6.26
1-085-4b	130-50	1	0	0	0		2	3	0	5.07	13.3	29.84	30.69	6.32
1-086-4b	130-50	3	0	0	2		0	7	0	0	0	0	0	5.40
1-087-4b	130-50	1	1	0	0		4	2	0	4.02	11.07	18.91	19.91	2.32
1-088-4b	130-50	1	1	0	0		2	3	0	6.02	19.45	28.33	25.97	6.06
1-089-4b	130-50	2	0	0	0		4	7	0	0	0	18.34	30.33	3.86
1-090-4b	130-50	1	0	0	0		2	6	0	0	0	17.82	37.58	6.70
1-091-4b	130-50	1	1	0	2		4	1	0	6.39	12.96	31.52	20.16	5.84
1-092-4b	130-50	1	1	0	0		4	3	0	3.74	11.23	35.03	17.51	3.68
1-093-4b	130-50	1	1	3	0		4	2	0	4.7	11.75	36.9	23.68	7.20
1-094-4b	130-50	1	1	0	0	2	4	3	0	2.16	8.91	13.7	24.56	1.10
1-095-4b	130-50	1	0	0	0		2	3	0	4.52	19.17	29.51	25.01	5.28
1-096-4b	130-50	1	1	1	0		1	2	0	3.51	11.23	29.38	39.37	8.84

1-097-4b	130-50	1	1	0	0		4	2	0	6.33	21.52	15.99	22.03	2.34
1-098-4b	130-50	2	0	0	0		0	0	0	0	0	0	0	2.88
1-099-4b	130-50	3	0	0	0		0	7	0	0	0	0	0	2.04
1-100-4b	130-50	1	1	1	0		1	2	0	3.84	8.33	20.53	35.13	4.46
1-101-4b	130-50	1	1	0	0		2	3	0	3.22	9.82	27.52	27.33	4.04
1-102-4b	130-50	3	0	0	1		0	7	0	0	0	0	0	6.70
1-103-4b	130-50	2	0	0	0		2	7	0	0	0	22.34	21.25	2.76
1-104-4b	130-50	1	1	1	0		4	2	0	3.33	5.98	16.39	27.35	2.84
1-105-4b	130-50											55.63	45.32	46.14
1-106-4b	130-50											38.86	24.03	16.54
1-1-3*	130	1	1	0	2	2	4	6	0	0	0	24.36	27.45	3.84
1-2-3*	130	1	1	0	0	2	4	3	0	5	13.38	29.33	19.87	3.06
1-3-3*	130	1	1	1	2	2	1	2	0	4.95	23.64	24.04	38.72	7.44
1-4-3*	130	2	0	0	0	2	4	6	0	0	0	22.58	35.11	4.54
1-001-5b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	10.78
1-002-5b	130-50	1	1	3	2	4	1	2	0	6.98	15.96	37.28	29.52	12.60
1-003-5b	130-50	1	1	3	2	4	4	3	0	4.37	23.53	23.49	34.7	4.40
1-004-5b	130-50	2	0	0	0	5	4	7	0	0	0	21.7	25.22	5.97
1-005-5b	130-50	2	0	0	0	4	2	7	0	0	0	25.55	29.84	6.70
1-006-5b	130-50	2	0	0	2	4	4	0	0	0	0	31.77	23.08	4.30
1-007-5b	130-50	2	0	0	0	4	4	7	0	0	0	30.29	45.41	10.90
1-008-5b	130-50	1	0	0	0	5	2	3	0	3.53	8.73	24.51	32.71	5.08
1-009-5b	130-50	1	1	3	0	5	0	2	0	11.31	26.15	49.89	43.68	27.64
1-010-5b	130-50	1	0	3	0	5	2	2	0	7.84	20.63	30.75	38.71	15.84
1-011-5b	130-50	1	1	3	0	5	4	3	0	7.88	29.4	33	46.44	11.94
1-012-5b	130-50	1	0	0	0	3	2	3	0	1.25	7.14	16.86	14.7	0.78
1-013-5b	130-50	1	1	3	0	4	4	2	0	5	16.46	28.22	34.41	6.30
1-014-5b	130-50	2	0	0	1	1	0	0	0	0	0	0	0	3.76
1-015-5b	130-50	1	0	0	0	4	2	2	0	3.92	8.92	40.87	35.76	10.56
1-016-5b	130-50	1	1	3	0	5	4	3	0	7.39	23.63	31.24	24.72	8.32
1-017-5b	130-50	3	0	0	2	6	0	7	0	0	0	0	0	5.40
1-018-5b	130-50	1	1	0	3	5	3	6	0	0	0	19.62	43.45	6.22
1-019-5b	130-50	1	0	3	0	5	2	3	0	6.93	23.65	44.79	49.14	27.26

1-020-5b	130-50	1	1	3	2	4	4	3	0	9.41	26.13	44.26	35.99	22.06
1-021-5b	130-50	1	1	5	2	5	2	2	0	8.1	17.3	63.6	41.54	21.72
1-022-5b	130-50	1	0	3	0	3	4	3	0	6.02	10.5	25.34	43.11	16.34
1-023-5b	130-50	1	0	3	0	5	1	6	0	2.63	9.79	21.34	46.99	5.74
1-024-5b	130-50	1	1	3	0	5	4	3	0	3.81	15.44	35.73	35.08	8.04
1-025-5b	130-50	1	1	2	0	5	4	2	0	6.41	19.12	24.14	46.36	8.82
1-026-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	17.22
1-027-5b	130-50	1	1	0	0	5	4	2	0	4.02	15.85	42.68	27.46	7.74
1-028-5b	130-50	1	0	3	0	3	2	3	0	12.8	29.36	30.75	39.81	15.44
1-029-5b	130-50	1	1	2	0	4	3	3	0	8.82	26.79	46.31	56.64	33.60
1-030-5b	130-50	1	1	3	0	3	4	2	0	6.82	11.37	53.71	29.93	11.70
1-031-5b	130-50	1	0	3	0	4	2	3	0	10.23	31.79	29.88	35.54	11.28
1-032-5b	130-50	1	0	3	0	3	2	2	0	6.04	15.55	28.45	26.6	5.86
1-033-5b	130-50	1	0	0	0	4	2	2	0	9.18	18.49	23.32	35.02	9.50
1-034-5b	130-50	2	0	0	0	5	0	7	0	0	0	24.94	23.3	3.86
1-035-5b	130-50	1	0	0	0	4	2	2	0	2.61	9.45	25.2	24.02	3.84
1-036-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	5.48
1-037-5b	130-50	1	0	0	0	6	2	3	0	8.6	17.15	27.02	18.3	4.36
1-038-5b	130-50	1	1	3	0	4	2	6	0	2.59	5.78	43.47	31.42	16.40
1-039-5b	130-50	1	0	3	0	5	2	6	0	3.23	12.92	33.64	55.81	15.04
1-040-5b	130-50	1	1	0	0	5	4	3	0	7	31.37	21.25	5039	10.82
1-041-5b	130-50	1	0	0	0	3	2	2	0	6.35	7.91	25.77	21.27	5.00
1-042-5b	130-50	1	1	3	0	3	4	3	0	2.62	17.87	29.69	25.68	3.74
1-043-5b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	3.14
1-044-5b	130-50	2	0	0	0	3	2	7	0	0	0	34	28.01	6.26
1-045-5b	130-50	1	0	0	0	2	2	6	0	0.95	14.04	22.29	33.14	5.60
1-046-5b	130-50	1	1	3	0	5	4	3	0	4.45	24.67	27.65	47.08	11.66
1-047-5b	130-50	1	1	3	0	4	1	2	0	5.07	14.49	34.24	31.51	6.12
1-048-5b	130-50	1	1	1	2	3	4	1	0	10.84	24.91	27.37	52.83	10.98
1-049-5b	130-50	3	0	0	2	1	0	0	0	0	0	0	0	3.94
1-050-5b	130-50	3	0	0	1	6	0	0	0	0	0	0	0	4.48
1-051-5b	130-50	1	1	0	2	6	4	1	0	8.85	12.08	17.12	34.45	3.50
1-052-5b	130-50	2	0	0	0	6	0	0	0	0	0	0	0	4.30

1-053-5b	130-50	2	0	0	0	6	0	0	0	0	0	0	0	1.84
1-054-5b	130-50	2	0	0	0	6	0	0	0	0	0	0	0	3.44
1-055-5b	130-50	2	0	0	0	3	2	7	0	0	0	33.67	26.23	7.22
1-056-5b	130-50	1	0	0	0	6	2	3	0	5.53	24.07	24.23	24.57	6.18
1-057-5b	130-50	2	0	0	0	3	2	7	0	0	0	22.37	35.19	5.56
1-058-5b	130-50	1	1	5	3	5	4	3	0	3.57	17.1	32.66	21.47	5.66
1-059-5b	130-50	1	1	0	0	3	4	2	0	6.73	26.73	21.01	33.35	4.32
1-060-5b	130-50	2	0	0	0	3	0	7	7	7	7	27.15	37.92	5.90
1-061-5b	130-50	2	0	3	0	3	4	6	0	0	0	46.85	57.39	29.02
1-062-5b	130-50	3	0	0	0	6	0	0	0	0	0	0	0	4.30
1-063-5b	130-50	3	0	0	0	6	0	0	0	0	0	0	0	5.02
1-064-5b	130-50	1	0	0	1	1	2	1	0	3.21	10.2	23.25	36.37	5.82
1-065-5b	130-50	1	1	3	2	5	4	6	0	2.59	15.31	30.31	25.9	4.80
1-066-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	4.16
1-067-5b	130-50	1	0	0	0	6	0	3	0	1.39	9.03	38.37	14.1	4.78
1-068-5b	130-50	1	0	0	0	4	4	3	0	2.83	15.08	21.96	20.33	3.50
1-069-5b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	2.56
1-070-5b	130-50	2	0	0	0	6	0	0	0	0	0	0	0	1.90
1-071-5b	130-50	1	1	0	0	2	4	2	0	7.02	24.81	19.53	25.99	4.44
1-072-5b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	3.64
1-073-5b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	3.96
1-074-5b	130-50	1	0	3	2	2	4	2	0	6.64	22.86	32.02	29.3	8.12
1-075-5b	130-50	2	0	3	0	2	0	0	0	0	0	34.2	27.38	6.78
1-076-5b	130-50	2	0	0	0	6	4	7	0	0	0	23.21	24.59	5.16
1-077-5b	130-50	1	0	0	0	6	2	3	0	5.39	25.83	26.28	34.55	7.58
1-078-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	2.76
1-079-5b	130-50	1	1	0	0	4	2	2	0	2.49	541	37.8	11.33	3.26
1-080-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	2.16
1-081-5b	130-50	2	0	0	0	6	0	0	0	0	0	0	0	2.34
1-082-5b	130-50	1	1	0	0	5	4	3	0	2.27	7.05	26.41	20.47	3.66
1-083-5b	130-50	1	0	0	0	2	2	3	0	5.32	14.54	23.2	30.65	4.88
1-084-5b	130-50	1	0	0	0	4	2	2	0	1.77	5.04	24.86	23.65	2.48
1-085-5b	130-50	1	1	3	0	4	4	6	0	1.78	8.8	25.56	22.72	3.66

1-086-5b	130-50	1	0	0	0	4	4	2	0	2.43	5.45	20.28	27.9	4.08
1-087-5b	130-50	1	0	0	0	3	2	3	0	6.16	21.17	19.54	25.65	4.28
1-088-5b	130-50	1	0	0	0	2	2	3	0	4.3	14.56	14.14	24.6	2.24
1-089-5b	130-50	1	0	0	0	6	2	6	0	4	4.01	19.89	24.4	3.14
1-090-5b	130-50	1	1	0	2	5	1	2	0	6.76	25.73	18.26	40.03	5.94
1-091-5b	130-50	1	1	3	0	3	4	3	0	2.79	18.47	25.42	33.48	3.12
1-092-5b	130-50	1	0	0	0	4	2	2	0	2.27	6.17	19.41	34.59	4.80
1-093-5b	130-50	2	0	0	0	2	2	7	0	0	0	30.33	33.63	10.80
1-094-5b	130-50	1	0	3	0	3	4	3	0	4.76	22.01	26.34	26.82	4.26
1-095-5b	130-50	1	1	3	0	5	2	6	0	1.88	2.57	46.45	27.57	10.68
1-096-5b	130-50	1	1	3	0	4	3	3	0	8.38	22.83	30.24	27.01	9.02
1-097-5b	130-50	1	0	0	1	1	2	2	0	5.36	2.56	26.22	14.67	2.84
1-098-5b	130-50	1	0	0	0	3	2	2	0	8.67	24.56	21.92	83.62	7.48
1-099-5b	130-50	1	1	0	0	4	4	3	0	6.32	12.71	29.11	19.63	4.60
1-100-5b	130-50	1	0	0	0	2	2	2	0	3.43	9.33	27.8	22.57	4.60
1-101-5b	130-50	1	0	0	0	6	2	3	0	3.4	9.69	17.45	35.39	4.54
1-102-5b	130-50	1	0	3	0	3	2	3	0	10.1	28.53	35.49	45.64	17.96
1-103-5b	130-50	1	0	0	0	6	4	1	0	644	28.36	22.33	29.07	4.48
1-104-5b	130-50	1	0	3	0	5	2	3	0	7.44	29.42	33.17	37.78	11.60
1-105-5b	130-50	2	0	0	0	6	0	0	0	0	0	0	0	11.26
1-106-5b	130-50	1	0	0	0	5	2	3	0	6.85	14.63	21.65	24.97	6.20
1-107-5b	130-50	1	0	0	0	3	2	2	0	3.36	7.88	30.08	26.79	4.22
1-108-5b	130-50	1	0	0	0	2	2	3	0	4.92	18.19	26.98	32.68	5.40
1-109-5b	130-50	1	1	0	0	3	4	3	0	6.8	28.89	18.87	37.44	6.44
1-110-5b	130-50	1	0	0	0	3	2	3	0	3.09	12.96	24.77	22.48	2.84
1-111-5b	130-50	1	0	0	0	5	2	2	0	8.27	28.58	29.08	41.16	10.78
1-112-5b	130-50	1	1	0	0	5	4	3	0	2.9	16.43	17.89	27.32	2.18
1-113-5b	130-50	1	0	0	0	2	2	3	0	4.04	15.48	25.22	27.75	3.80
1-114-5b	130-50	1	1	0	0	2	4	6	0	2.82	13.71	21.3	22.77	2.86
1-115-5b	130-50	1	1	0	0	2	2	6	0	2.41	15.76	33.03	28.19	7.92
1-116-5b	130-50	2	0	0	0	6	2	7	0	0	0	0	0	7.06
1-117-5b	130-50	1	0	0	0	4	4	3	0	7.55	30.66	18.64	39.92	6.96
1-118-5b	130-50	2	0	0	0	6	0	0	0	0	0	0	0	2.44

1-119-5b	130-50	1	1	0	2	3	3	1	0	6.91	17.18	27.89	21.96	4.72
1-120-5b	130-50	1	0	3	2	4	4	1	0	4.61	19.14	24.66	33.22	4.54
1-121-5b	130-50	2	0	0	0	3	4	2	0	2.25	8.15	16.13	28.45	1.62
1-122-5b	130-50	1	0	0	0	4	2	2	0	8.57	18.67	25.63	19.07	2.98
1-123-5b	130-50	1	1	3	2	5	4	6	0	3.92	4.76	35.01	20.67	5.02
1-124-5b	130-50	1	0	0	0	5	4	3	0	1.44	15.84	19.04	29.97	3.28
1-125-5b	130-50	1	0	0	0	2	2	3	0	3.65	15.8	18.46	30.73	4.40
1-126-5b	130-50	1	0	0	0	4	4	3	0	5	14.58	21.11	27.16	3.96
1-127-5b	130-50	1	0	0	0	4	2	3	0	5.69	17.98	18.36	31.36	4.46
1-128-5b	130-50	1	0	0	0	4	2	3	0	1.93	7.24	18.08	20.86	1.94
1-129-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	1.60
1-130-5b	130-50	1	0	0	0	3	2	3	0	4.55	17.09	29.3	29.87	4.58
1-131-5b	130-50	2	0	0	1	3	0	0	0	0	0	0	0	2.68
1-132-5b	130-50	1	0	0	0	3	2	2	0	3.03	10.48	18.07	24.6	2.16
1-133-5b	130-50	1	0	0	0	3	2	3	0	5.46	23.45	17.79	23.26	3.08
1-134-5b	130-50	1	1	0	2	1	4	3	0	8.18	20.38	16.8	28.09	2.36
1-135-5b	130-50	1	0	0	0	4	2	2	0	3.85	11.33	23.24	23.83	3.46
1-136-5b	130-50	1	0	0	0	2	2	3	0	6.38	10.77	20.94	16.99	2.08
1-137-5b	130-50	1	0	0	2	5	6	1	0	0	0	28.18	21.68	4.00
1-138-5b	130-50	1	0	0	0	5	2	3	0	3.02	13.66	23.55	21.57	3.28
1-139-5b	130-50	1	0	0	0	4	2	2	0	3.61	10.52	19.18	20.41	1.82
1-140-5b	130-50	3	0	0	0	6	0	0	0	0	0	0	0	3.52
1-141-5b	130-50	3	0	0	2	6	0	7	0	0	0	0	0	2.16
1-142-5b	130-50	1	0	0	0	3	2	6	0	2.92	5.96	21.3	25.91	2.22
1-143-5b	130-50	1	0	0	0	6	2	3	0	2.1	7.9	12.26	11.77	0.52
1-144-5b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	0.44
1-145-5b	130-50	2	0	0	0	6	0	7	0	0	0	19.24	34.78	8.88
1-146-5b	130-50	1	1	0	0	6	2	3	0	3.6	3.7	11.49	12.71	0.50
1-147-5b	130-50	1	0	0	2	6	4	1	0	2.63	4.03	12.13	787	0.32
1-148-5b	130-50	1	0	0	0	2	2	3	0	5.44	17.19	27.38	34.18	6.14
1-149-5b	130-50	1	0	0	0	2	2	6	0	1.06	4.49	13.61	17.47	0.92
1-150-5b	130-50	1	0	0	0	2	2	2	0	4.41	14.86	25.07	21.83	4.64
1-151-5b	130-50	1	0	0	2	3	2	3	0	2.06	8.21	16.99	25.48	2.36

1-152-5b	130-50	1	0	0	0	5	2	3	0	5.76	21.54	19.1	23.65	3.98
1-153-5b	130-50	2	0	0	0	2	2	7	0	0	0	21.35	14.53	1.48
1-154-5b	130-50	1	0	0	0	4	4	3	0	2.69	12.22	26.39	15.74	1.98
1-155-5b	130-50	1	0	0	0	6	2	3	0	4.48	11.6	25.62	17.5	1.90
1-156-5b	130-50	1	0	0	0	5	4	3	0	4.91	22.19	19.16	23.49	3.02
1-157-5b	130-50	1	0	0	0	5	2	2	0	3.08	7.34	21.14	18.6	1.96
1-158-5b	130-50	1	0	0	0	6	2	3	0	4.86	19.57	12.66	26.56	1.76
1-159-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	1.58
1-160-5b	130-50	1	0	0	0	4	2	3	0	2.63	9.8	19.38	21.56	2.30
1-161-5b	130-50	1	1	0	2	1	4	3	0	4.33	11.29	15.47	24.86	2.12
1-162-5b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	1.40
1-163-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	0.92
1-164-5b	130-50	1	1	0	0	3	4	3	0	2.16	10.19	20.74	25.45	2.60
1-165-5b	130-50	1	1	0	0	5	4	3	0	4.3	15.12	21.57	19.41	2.46
1-166-5b	130-50	1	0	0	0	6	2	6	0	3.29	8.23	14.83	21.11	1.26
1-167-5b	130-50	1	0	0	0	3	4	6	0	2.7	7.2	21.66	17.66	1.36
1-168-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	1.64
1-169-5b	130-50	1	1	0	0	5	4	2	0	3.97	13.01	15.62	23.44	1.64
1-170-5b	130-50	1	0	0	0	3	2	6	0	3.29	7.6	17.61	17.72	1.76
1-171-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	0.68
1-172-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	1.08
1-173-5b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	0.66
1-174-5b	130-50	1	0	0	0	5	2	3	0	2.85	16.27	18.56	18	1.72
1-175-5b	130-50	2	0	0	0	3	4	0	0	0	0	12.34	19.89	1.32
1-176-5b	130-50	1	0	0	0	4	2	3	0	2.46	11.53	10.41	14.49	0.54
1-177-5b	130-50	1	0	0	0	6	4	3	0	2.51	8.48	12.99	15.32	0.66
1-178-5b	130-50	1	1	0	1	6	4	1	0	2.5	7.08	14.5	14	0.46
1-179-5b	130-50	1	0	0	0	3	2	3	0	4.59	17.21	25.29	25.7	3.60
1-180-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	0.94
1-181-5b	130-50	1	0	0	0	3	2	3	0	7.22	18.66	20.98	22.35	3.78
1-182-5b	130-50	1	0	0	0	5	2	3	0	4.39	14.4	18.11	22.83	2.74
1-183-5b	130-50	1	0	0	0	6	2	3	0	5.08	17.44	18.9	28.37	2.54
1-184-5b	130-50	2	0	0	0	6	4	0	0	0	0	8.97	13.85	0.34

1-185-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	0.30
1-186-5b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	0.56
1-187-5b	130-50	1	1	0	0	1	4	2	1	3.63	13.3	13.08	14.79	0.70
1-188-5b	130-50	2	0	0	0	6	0	7	0	0	0	17.88	18.78	2.70
1-001-6b	130-50	1	0	0	0	2	2	3	0	5.28	15.62	20.3	22.62	2.84
1-002-6b	130-50	2	0	0	0	6	0	0	0	0	0	0	0	4.06
1-003-6b	130-50	2	0	0	0	2	4	7	0	0	0	23.92	26.57	4.52
1-004-6b	130-50	1	1	3	0	5	4	3	0	3.12	20.46	21.81	26.25	3.46
1-005-6b	130-50	1	0	0	0	2	2	2	0	3.33	14.37	26.49	21.16	3.96
1-006-6b	130-50	1	0	3	0	4	2	2	0	8.72	20.62	31.17	25.31	8.62
1-007-6b	130-50	1	0	0	0	5	4	3	0	5.29	18.41	23.14	26.6	4.58
1-008-6b	130-50	1	1	0	0	6	4	2	0	9.97	17.96	33.96	23.64	9.36
1-009-6b	130-50	1	1	1	0	5	4	3	0	5.32	16.73	38.25	35.84	14.56
1-010-6b	130-50	1	1	3	2	5	4	3	0	8.4	34.13	46.01	32.4	12.28
1-011-6b	130-50	1	0	3	2	5	4	3	0	9.63	39.24	37.55	42.97	20.32
1-012-6b	130-50	1	1	2	0	5	4	3	0	13.18	27.67	43.26	50.04	25.82
1-013-6b	130-50	2	0	3	0	4	4	7	0	0	0	37.59	33.86	10.12
1-014-6b	130-50	1	1	1	2	5	1	3	0	4.48	14	39.06	46.4	16.70
1-015-6b	130-50	1	1	3	2	6	4	2	0	7.36	20.33	67.07	44.86	41.12
1-016-6b	130-50	1	1	2	2	5	4	1	0	7.68	51.75	46.11	52.85	25.76
1-017-6b	130-50	1	1	5	0	5	4	3	0	6.22	21.47	58.48	33.09	13.62
1-018-6b	130-50	1	1	3	0	5	4	3	0	5.16	23.12	43.42	51.96	23.80
1-019-6b	130-50	1	1	1	0	5	4	2	1	11.81	27.27	40.8	48.08	30.06
1-020-6b	130-50	1	1	0	0	2	4	3	0	7.5	19.12	21.63	19.34	2.26
1-021-6b	130-50	1	1	0	0	4	4	3	0	4.06	14.54	24.63	26.02	3.26
1-022-6b	130-50	2	0	0	0	3	0	7	0	0	0	0	0	3.24
1-023-6b	130-50	2	0	0	0	2	0	7	0	0	0	18.66	33.26	6.28
1-024-6b	130-50	1	1	3	0	4	4	2	0	5.01	16.23	23.59	40.6	7.94
1-025-6b	130-50	1	0	0	0	4	2	2	0	3.29	9.96	21.39	28.07	3.96
1-026-6b	130-50	1	1	3	0	5	4	3	0	4.19	25.92	21.4	43.08	8.04
1-027-6b	130-50	1	1	0	0	4	4	3	0	4.88	18.8	22.78	35.52	4.96
1-028-6b	130-50	1	1	3	0	2	2	3	0	7.06	24.72	32.69	30.47	7.68
1-029-6b	130-50	1	0	2	0	5	2	2	0	5.63	17.23	39.19	51.68	20.20

1-030-6b	130-50	1	1	3	0	5	0	3	0	8.18	22.98	31.8	46.86	29.64
1-031-6b	130-50	1	1	3	2	6	4	3	0	11.48	45.03	48.89	41.54	29.36
1-032-6b	130-50	2	0	0	3	5	0	7	0	0	0	0	0	18.72
1-033-6b	130-50	1	1	3	2	5	4	3	0	5.01	14.07	21.7	54.77	15.10
1-034-6b	130-50	1	1	2	1	3	4	2	0	13.56	35.12	40.37	54.47	31.06
1-035-6b	130-50	1	0	0	0	5	2	3	0	2.1	12.91	24.05	28.74	3.54
1-036-6b	130-50	1	1	3	0	3	1	3	0	6.16	15.39	31.4	29.63	7.80
1-037-6b	130-50	1	0	0	0	6	4	2	0	4.4	12.15	28.67	24.62	2.12
1-038-6b	130-50	1	0	0	0	3	4	2	0	3.62	17.59	31.83	25.8	5.28
1-039-6b	130-50	1	1	3	2	2	4	3	0	7.01	21.27	32.7	25.59	8.10
1-040-6b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	5.66
1-041-6b	130-50	1	0	3	0	5	2	3	0	7.31	29.91	33.14	36.33	13.48
1-042-6b	130-50	1	1	3	2	5	1	3	0	2.12	9.24	30.59	39.71	7.42
1-043-6b	130-50	1	0	0	0	5	2	2	0	6.9	19.06	38.89	24.48	10.64
1-044-6b	130-50	1	0	0	0	5	2	3	0	9.83	31.95	54.27	37.91	40.30
1-045-6b	130-50	1	0	0	0	4	2	0	0	7.12	17.04	39.6	23.93	11.70
1-046-6b	130-50	1	1	0	0	2	4	2	0	8.62	14.13	25.79	15.3	3.40
1-047-6b	130-50	1	0	0	0	3	4	3	0	3.37	11.15	15.52	14.49	1.22
1-048-6b	130-50	1	0	0	0	4	4	6	0	0	0	15.28	28.47	2.06
1-049-6b	130-50	2	0	0	0	6	4	7	0	0	0	16.47	36.92	4.30
1-050-6b	130-50	1	1	0	0	3	4	2	1	5.23	12.96	19.01	27.42	2.94
1-051-6b	130-50	1	1	0	2	3	4	3	0	3.72	10.2	13.27	27.46	1.88
1-052-6b	130-50	1	0	0	0	6	2	6	0	3.11	10.38	17.92	28.14	2.30
1-053-6b	130-50	1	0	0	0	4	2	3	0	4	11.65	23.75	21.13	2.42
1-054-6b	130-50	1	1	0	0	6	4	2	0	5.79	20.23	15.49	21.02	2.50
1-055-6b	130-50	2	0	0	0	6	0	7	0	0	0	17.74	24.24	2.64
1-056-6b	130-50	1	1	0	0	3	4	3	0	3.01	9.23	22.92	23.06	3.36
1-057-6b	130-50	1	1	0	0	6	4	3	0	2.9	11.72	27.03	18.51	2.54
1-058-6b	130-50	1	1	0	0	5	4	2	0	3.9	19.99	20.75	32.13	3.76
1-059-6b	130-50	1	1	0	0	4	4	3	0	11.23	33.33	21.18	33.42	7.30
1-060-6b	130-50	1	1	3	0	4	4	2	0	4.28	9.62	21.04	34.01	3.86
1-061-6b	130-50	1	1	3	2	3	1	2	0	3.37	7.77	34.71	26.44	5.36
1-062-6b	130-50	1	1	0	0	5	4	3	0	6.3	15.97	21.32	28.79	5.14

1-063-6b	130-50	1	1	3	0	4	4	2	0	11.72	27.56	34.8	32.03	15.42
1-064-6b	130-50	1	0	3	0	4	2	3	0	7.46	22.57	50.64	44.89	21.56
1-065-6b	130-50	1	1	0	0	2	4	3	0	3.88	14.78	12.51	15.97	0.94
1-066-6b	130-50	1	1	0	0	5	4	3	0	10.92	25.43	32.28	25.28	8.18
1-067-6b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	1.54
1-068-6b	130-50	1	1	0	0	4	4	3	0	6.44	17.77	12.39	21.31	1.22
1-069-6b	130-50	1	0	0	0	5	2	6	0	3.2	13.07	29.01	35.43	7.68
1-070-6b	130-50	1	0	0	0	6	2	6	0	1.12	2.92	12.33	20.84	0.74
1-071-6b	130-50	1	0	0	0	6	2	6	0	0	0	14.77	15.71	1.02
1-072-6b	130-50	2	0	0	0	6	4	7	0	0	0	16.26	24.98	2.28
1-073-6b	130-50	2	0	0	0	6	2	7	0	0	0	16.39	22.08	2.12
1-074-6b	130-50	1	0	0	0	4	2	3	0	1.85	10.16	17.22	21.13	2.14
1-075-6b	130-50	1	1	0	0	2	4	2	0	4.48	14.42	16.34	23.56	1.82
1-076-6b	130-50	1	0	0	0	4	2	6	0	1.37	8.3	20.15	15.48	1.26
1-077-6b	130-50	1	0	0	0	3	4	6	0	2.84	13.96	24.56	21.13	2.48
1-078-6b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	1.78
1-079-6b	130-50	1	0	0	0	4	2	3	0	2.39	16.68	16.36	23.66	1.92
1-080-6b	130-50	1	0	0	0	3	2	3	0	2.38	8.51	15.99	26.96	2.16
1-081-6b	130-50	1	0	0	0	6	2	3	0	4.74	13.36	20.38	31.16	3.42
1-082-6b	130-50	1	1	3	0	3	4	3	0	4.33	15.29	29.29	24.73	4.24
1-083-6b	130-50	1	1	0	0	3	2	3	0	4.46	16.31	21.2	25.4	2.92
1-084-6b	130-50	2	0	0	0	6	4	7	0	0	0	20.79	22.82	2.60
1-085-6b	130-50	1	0	0	2	5	2	3	0	3.72	10.17	19.07	27.77	4.26
1-086-6b	130-50	1	0	0	0	4	2	3	0	3.92	11.62	20.92	28.45	2.66
1-087-6b	130-50	1	0	0	2	6	2	2	0	13.17	14.73	29.32	18.17	5.36
1-088-6b	130-50	1	0	0	0	3	2	3	0	8.07	18.6	25.66	22.92	3.08
1-089-6b	130-50	1	1	0	0	3	4	3	0	4.53	17.17	17.52	26.3	3.62
1-090-6b	130-50	2	0	0	0	2	0	7	0	0	0	0	0	4.64
1-091-6b	130-50	1	1	0	0	5	4	3	0	3.93	10.4	26.72	21.92	2.84
1-092-6b	130-50	1	1	0	0	3	4	3	0	2.94	10.72	24.06	20.98	2.60
1-093-6b	130-50	1	0	0	0	5	3	3	0	4.95	16.11	20.54	31.14	4.68
1-094-6b	130-50	1	0	3	0	5	2	6	0	4.9	10.29	29.36	22.64	4.42
1-095-6b	130-50	1	1	3	1	6	4	2	0	7.1	12.69	34.08	40.69	17.24

1-096-6b	130-50	1	1	3	2	3	4	6	0	3.23	19.1	24.93	35.64	6.56
1-097-6b	130-50	1	0	0	0	4	4	3	0	3.31	14.93	22.15	31.89	5.22
1-098-6b	130-50	1	1	3	0	5	4	2	0	4.45	15.34	32.53	31.86	8.04
1-099-6b	130-50	1	0	0	2	3	2	3	0	2.43	6.72	27.86	24.71	3.30
1-100-6b	130-50	1	1	0	2	5	4	2	0	12.27	13.1	33.85	58.5	25.64
1-101-6b	130-50	1	0	0	0	2	4	2	0	5.12	22.43	38.9	28.03	10.40
1-102-6b	130-50	1	0	0	0	2	2	3	0	9.54	26.71	35.94	29.35	15.54
1-103-6b	130-50	1	0	0	0	2	4	3	0	8.42	32.26	33.74	32.37	8.86
1-104-6b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	4.36
1-105-6b	130-50	1	0	0	0	4	4	2	1	6.31	17.58	29.63	48.16	11.88
1-106-6b	130-50	1	0	0	0	5	4	2	0	4.75	9.65	31.37	39.14	8.38
1-107-66	130-50	1	0	0	0	4	2	3	0	4.77	17.14	29.79	30.4	5.16
1-108-6b	130-50	1	1	3	0	5	4	3	0	6.27	28.05	29.56	39.86	10.80
1-109-6b	130-50	1	0	3	0	4	2	3	0	10.57	35.04	30.62	52.11	19.58
1-110-6b	130-50	1	1	0	0	5	4	3	0	2.44	7.77	26.83	39.73	5.66
1-111-6b	130-50	1	0	0	2	6	2	0	0	6.55	9.2	41.92	23.4	5.46
1-112-6b	130-50	1	1	0	2	6	4	3	0	6.84	34.99	26.51	44.41	12.72
1-113-6b	130-50	1	1	0	0	5	4	3	0	6.1	17.38	25.61	26.13	5.52
1-114-6b	130-50	1	0	0	0	4	2	3	0	8.6	25.18	22.96	39.55	9.00
1-115-6b	130-50	1	1	0	2	5	4	2	0	6.34	12.78	35.57	22.49	7.10
1-116-6b	130-50	1	1	2	0	5	4	3	0	9.11	31.81	36.87	57.47	28.42
1-117-6b	130-50	2	0	0	0	3	4	7	0	0	0	23.77	50.25	9.26
1-118-6b	130-50	1	0	3	0	3	2	2	0	8.83	28.16	28.09	44.01	15.42
1-119-6b	130-50	1	0	3	0	4	2	3	0	10.86	43.72	25.29	44.62	20.10
1-120-6b	130-50	1	0	0	0	4	4	2	0	10.38	22.26	34.29	28.36	11.22
1-121-6b	130-50	1	0	0	0	5	2	6	0	1.67	18.54	32.42	27.71	5.46
1-122-6b	130-50	*	*	*	*	*	*	*		0	0	0	0	45.20
1-123-6b	130-50	1	0	0	0	4	4	3	0	4.65	25.24	29.73	27.52	5.24
1-124-6b	130-50	1	0	0	0	4	2	3	0	7.75	14.84	20.96	26.96	5.16
1-125-6b	130-50	1	1	3	2	5	4	3	0	7.13	18.82	26.06	41.59	9.70
1-126-6b	130-50	1	1	0	0	4	4	3	0	9.37	26.44	31.1	34.97	10.90
1-127-6b	130-50	1	1	0	0	6	2	3	0	3.55	11.36	22.76	38.13	7.96
1-128-6b	130-50	1	0	0	0	3	4	2	0	5.96	28.4	27.14	29.98	6.84

1-129-6b	130-50	1	0	0	0	6	4	2	0	3.36	18.82	11.23	19.42	1.02
1-130-6b	130-50	1	0	0	0	4	4	6	0	2.15	14.58	34.56	34.87	6.96
1-131-6b	130-50	1	1	2	0	5	4	3	0	11.55	32.55	52.11	55.36	42.82
1-132-6b	130-50	1	0	3	0	4	4	3	0	3.81	13.56	39.4	41.79	10.74
1-133-6b	130-50	1	0	0	0	5	4	3	0	4.28	9.23	44.26	26.77	7.44
1-134-6b	130-50	1	1	0	0	4	4	3	0	10.79	30.21	26.27	33.76	8.02
1-135-6b	130-50	0	0	0	0	5	4	7	0	0	0	25.02	31.61	9.26
1-136-6b	130-50	1	1	2	0	5	3	3	0	5.6	22.89	44.99	42.82	15.26
1-137-6b	130-50	1	1	0	1	3	4	3	0	2.39	23.23	31.41	29.71	4.94
1-138-6b	130-50	1	0	0	0	5	4	3	0	7.4	18.62	36.34	30.23	7.18
1-139-6b	130-50	2	0	0	1	6	0	0	0	0	0	0	0	5.74
1-140-6b	130-50	1	1	0	2	5	4	2	0	8.3	19.8	31.47	33.53	10.16
1-141-6b	130-50	1	1	0	0	4	4	3	0	4.26	16.01	39.11	18.37	4.58
1-142-6b	130-50	1	0	0	0	4	2	2	0	12.6	20.02	33.44	33.75	17.18
1-143-6b	130-50	1	1	3	0	5	4	3	0	10.1	24.09	43.09	38.83	17.80
1-144-6b	130-50	2	0	0	0	3	0	0	0	0	0	0	0	5.46
1-145-6b	130-50	1	1	0	0	5	4	3	0	3.35	22.66	30.78	24.38	5.88
1-146-6b	130-50	1	1	1	0	5	4	2	0	8.3	40.6	26.26	56.62	12.46
1-147-6b	130-50	1	0	0	0	5	4	2	0	9.46	12.7	47.26	25.7	10.88
1-148-6b	130-50	1	1	3	0	5	3	3	0	13.84	31.61	57.17	39.38	37.56
1-149-6b	130-50	1	1	0	0	5	4	2	0	6.23	14.91	31.31	29.69	7.20
1-150-6b	130-50	1	1	2	0	6	3	2	0	9.47	27.08	38.17	60.17	27.34
1-6b	130-50	*	*	*	*	*	*	*	*	*	*	*	*	0.24
1-001-9b	130-50	1	1	0	2	3	4	3	0	3.77	10.19	10.78	14.13	0.42
1-002-9b	130-50	1	0	0	0	4	2	3	0	2.79	6.84	9.11	16.27	0.44
1-003-9b	130-50	1	1	0	0	2	4	2	0	2.18	12.85	13.79	14.1	0.54
1-004-9b	130-50	1	1	0	0	6	4	3	0	4.74	16.25	13.43	19.11	0.92
1-005-96	130-50	1	1	0	0	2	4	3	0	4.26	19.08	12.55	22.28	1.08
1-006-9b	130-50	1	0	0	0	4	2	2	0	3.15	10.21	17.03	19.54	1.58
1-007-9b	130-50	2	0	0	0	6	0	7	0	0	0	10.91	19.5	0.76
1-008-9b	130-50	1	0	5	0	5	4	2	0	2.41	14.48	29.63	22.73	2.68
1-009-9b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	1.78
1-010-9b	130-50	3	0	0	0	3	0	7	0	0	0	0	0	2.56

1-011-9b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	1.82
1-012-9b	130-50	1	0	0	0	1	2	2	0	4.02	16.04	14.07	19.39	1.40
1-013-9b	130-50	3	0	0	0	2	2	7	0	0	0	0	0	1.00
1-014-9b	130-50	1	0	0	0	2	2	2	0	2.6	10.64	19.33	17.81	1.36
1-015-9b	130-50	3	0	0	2	6	0	7	0	0	0	0	0	1.60
1-016-9b	130-50	1	1	0	2	6	4	2	0	6.71	28.67	13.42	29.18	2.12
1-017-9b	130-50	1	0	0	0	3	2	2	0	2.81	6.18	11.45	25.62	1.17
1-018-9b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	3.44
1-019-9b	130-50	1	0	0	0	3	2	3	0	3.89	13.99	16.95	21.83	1.80
1-020-9b	130-50	3	0	0	2	3	0	7	0	0	0	0	0	2.60
1-021-9b	130-50	1	0	0	0	5	4	6	0	1.61	12.81	19.5	20.93	1.98
1-022-9b	130-50	3	0	0	2	6	0	7	0	0	0	0	0	2.84
1-023-9b	130-50	1	0	0	2	2	2	1	0	1.73	12.6	20.84	16.66	1.54
1-024-9b	130-50	3	0	0	2	3	0	7	0	0	0	0	0	4.42
1-025-9b	130-50	3	0	0	0	3	0	7	0	0	0	0	0	2.70
1-026-9b	130-50	1	0	0	0	2	2	2	0	3.39	9.27	23.16	19.99	1.76
1-027-9b	130-50	3	0	0	1	0	0	7	0	0	0	0	0	1.50
1-028-9b	130-50	3	0	0	1	0	0	7	0	0	0	0	0	3.94
1-029-9b	130-50	2	0	0	0	6	2	6	0	0	0	17.27	24.44	1.32
1-030-9b	130-50	2	0	0	0	6	2	6	0	2.78	5.88	22.31	16.29	1.28
1-031-9b	130-50	2	0	0	0	6	2	7	0	0	0	15.33	19.82	1.42
1-032-9b	130-50	1	0	0	0	3	2	3	0	1.7	9.01	20.82	15.67	1.46
1-033-9b	130-50	1	0	0	0	2	2	3	0	4.65	15.24	15.01	24.7	2.16
1-034-9b	130-50	2	0	0	0	3	2	7	0	0	0	19.9	24.6	2.40
1-035-9b	130-50	1	0	0	0	4	4	2	0	3.47	16.44	23.41	19.56	2.02
1-036-9b	130-50	1	1	0	0	4	2	3	0	4.18	16.51	17.23	26.98	2.82
1-037-9b	130-50	1	0	5	0	5	4	3	0	3.39	11.79	31.19	22.24	4.12
1-038-9b	130-50	1	0	0	2	2	4	3	0	10.8	33.38	23.48	33.19	7.10
1-039-9b	130-50	2	0	0	2	2	4	7	0	0	0	18.35	18.99	2.28
1-040-9b	130-50	1	0	0	1	1	2	3	0	7.28	28.28	22.78	27.95	5.80
1-041-9b	130-50	1	0	0	0	5	2	3	0	3.75	16.92	33.87	20.92	3.74
1-042-9b	130-50	2	0	0	0	6	0	7	0	0	0	17.03	29.9	1.70
1-043-9b	130-50	2	0	0	0	2	2	7	0	0	0	23.74	21.88	2.60

1-043-9b	130-50	1	1	0	0	5	4	3	0	3.49	17.9	25.75	24.71	2.72
1-045-9b	130-50	1	1	0	0	3	4	3	0	3.17	23.02	18.86	32.82	2.42
1-046-9b	130-50	1	1	0	0	6	4	3	0	9.24	39.62	24.42	39.3	7.24
1-047-9b	130-50	1	0	5	0	5	4	3	0	2.85	15.6	37.51	21.78	4.06
1-048-9b	130-50	1	1	0	2	5	2	2	0	8.33	26.28	21.06	29.04	6.34
1-049-9b	130-50	1	1	0	0	5	4	2	0	3.94	17.33	24.22	30.36	5.00
1-050-9b	130-50	2	0	0	0	5	0	7	0	0	0	0	0	6.46
1-051-9b	130-50	3	0	0	0	6	0	0	0	0	0	0	0	6.82
1-052-9b	130-50	1	0	0	2	2	2	6	0	2.98	12.16	21.01	29.62	3.18
1-053-9b	130-50	1	0	0	0	6	2	3	0	4.74	19.36	19.7	30.22	4.50
1-054-9b	130-50	1	1	3	0	4	4	3	0	2.49	12.91	27.81	24.36	3.12
1-055-9b	130-50	1	1	0	0	3	4	2	0	2.96	14.85	30.87	20.89	3.24
1-056-9b	130-50	1	0	0	0	4	2	2	0	4.83	12.21	21.7	25.68	3.98
1-057-9b	130-50	2	0	0	0	5	2	7	0	0	0	26.41	27.22	4.42
1-058-9b	130-50	1	0	5	0	5	2	2	0	3.68	8.09	53.59	17.46	7.40
1-059-9b	130-50	1	1	1	0	3	4	3	0	7.71	20.2	19.9	41.55	4.54
1-060-9b	130-50	1	1	0	0	4	4	2	0	1.88	17.08	21.86	45.17	6.64
1-061-9b	130-50	1	0	0	0	6	2	3	0	3.62	13.24	17.03	19.7	1.72
1-062-9b	130-50	1	1	3	0	5	4	2	0	5.3	30.32	38.28	38.44	11.36
1-063-9b	130-50	1	1	3	0	3	4	2	0	1.83	12.5	30.26	42.34	8.76
1-064-9b	130-50	1	1	0	0	3	4	3	0	4.38	22.55	39.59	23.65	7.28
1-065-9b	130-50	1	1	0	0	4	2	2	0	8.15	22.52	30.73	32.46	5.74
1-066-9b	130-50	1	1	0	0	5	4	2	0	2.38	7.94	26.17	28.95	3.96
1-067-9b	130-50	1	1	3	0	5	4	2	0	6.09	14.78	30.6	32.15	7.88
1-068-9b	130-50	1	1	3	0	6	4	2	0	5.04	17.92	32.57	29.22	5.58
1-069-9b	130-50	1	1	0	0	4	2	2	0	5.77	25.71	23.17	40.22	6.80
1-070-9b	130-50	1	1	0	2	0	4	2	0	11.3	24.61	55.45	27.29	12.26
1-071-9b	130-50	1	1	3	0	5	4	3	0	5.69	18.42	43.5	35.64	12.76
1-072-9b	130-50	1	1	3	0	5	2	3	0	6.71	24.78	32.2	46.85	13.46
1-073-9b	130-50	1	0	0	0	4	2	3	0	7.13	23.25	28.78	31.04	9.04
1-074-9b	130-50	1	1	3	0	5	4	2	0	4.33	43.64	24.34	44.41	6.98
1-075-9b	130-50	1	1	3	0	5	4	2	0	5.9	17.28	33.28	35.22	9.84
1-076-9b	130-50	1	1	3	0	6	4	2	0	5.09	10.76	36.9	42.08	9.60

1-077-9b	130-50	2	0	0	2	4	4	7	0	0	0	39.56	39.75	10.46
1-078-9b	130-50	1	0	3	2	4	4	3	0	2.7	15.74	37.77	43.51	9.14
1-079-9b	130-50	1	1	3	2	4	4	2	0	7.55	17.34	27.28	49.22	11.80
1-080-9b	130-50	1	0	0	0	5	4	2	0	4.58	14.76	31.87	23.11	7.50
1-081-9b	130-50	1	1	3	0	4	2	2	0	11.78	40.09	30.8	47.94	18.18
1-082-9b	130-50	1	0	3	0	4	2	3	0	8.86	32.63	40.53	47.94	17.18
1-083-9b	130-50	1	1	3	0	5	4	3	0	5.8	26.11	38.31	52.36	24.22
1-084-9b	130-50	1	1	3	0	2	2	3	0	6.63	16	39.5	41.7	13.40
1-085-9b	130-50	1	0	3	0	4	4	0	0	10.6	10.04	53.81	40.88	15.88
1-086-9b	130-50	1	1	1	0	5	2	3	0	9.41	41.66	37.32	56.32	36.48
1-087-9b	130-50	2	0	3	2	4	4	7	0	0	0	47.21	66.69	34.14
1-088-9b	130-50	1	0	3	0	5	2	3	0	3.51	26.12	47.97	61.21	22.24
1-089-9b	130-50	1	0	3	0	4	2	3	0	5.7	51.33	38.91	53.11	17.16
1-090-9b	130-50	1	0	3	2	3	2	1	0	16.76	42.62	38.57	52.42	35.40
1-091-9b	130-50	1	1	3	2	4	4	2	0	9.31	35.14	30.91	62.93	25.36
1-092-9b	130-50	1	1	3	1	0	4	3	0	22.21	51.87	71.33	79.85	116.28
1-001-8b	130-50	1	1	0	0	4	2	3	0	4.57	15.62	38.04	19.58	5.30
1-002-8b	130-50	1	1	3	0	5	4	2	0	9.12	18.22	36.5	59.37	49.14
1-003-8b	130-50	1	0	0	0	0	2	2	0	10.46	21.18	29.13	31.59	9.36
1-004-8b	130-50	1	0	0	0	3	2	6	0	1.7	17.08	34.4	32.5	9.28
1-005-8b	130-50	1	1	3	1	5	4	2	0	8.2	25.02	49.47	56.74	31.90
1-006-8b	130-50	1	0	3	0	6	4	3	0	9.54	28.73	47.77	49.06	20.26
1-007-8b	130-50	1	1	1	0	6	4	2	0	11.97	30.67	25.74	56.92	11.04
1-008-8b	130-50	1	0	0	0	5	2	2	0	3.17	12.29	23.63	32.54	7.22
1-009-8b	130-50	1	0	0	2	0	2	3	0	6.19	17.74	26.49	28.73	7.86
1-010-8b	130-50	1	1	0	0	4	4	2	0	4.2	13.09	23.65	29.23	4.86
1-011-8b	130-50	1	1	3	0	2	3	3	0	9.9	29.64	25.88	37.85	8.88
1-012-8b	130-50	1	0	0	0	5	4	2	0	2.18	4.67	33.29	21.52	3.14
1-013-8b	130-50	2	0	0	2	1	2	7	0	0	0	12.87	24.48	1.28
1-014-8b	130-50	1	1	0	0	5	3	2	0	4.27	10.62	31.91	21.63	4.72
1-015-8b	130-50	1	0	0	0	3	2	2	0	8.92	18.11	39.49	27.45	11.76
1-016-8b	130-50	1	0	0	0	5	2	3	0	5.55	15.43	23.51	26.67	4.94
1-017-8b	130-50	1	1	0	0	4	4	2	0	2.53	15.42	21.71	25.14	4.00

1-018b	130-50	1	1	3	0	3	4	2	0	3.63	17.77	21.02	46.21	4.88
1-019-8b	130-50	2	0	0	0	0	0	7	0	0	0	0	0	9.26
1-020-8b	130-50	1	1	3	2	5	4	3	0	7.47	28.7	60.02	59.69	32.36
1-021-8b	130-50	1	1	0	0	2	4	2	0	4.2	8.68	23.46	53.26	10.92
1-022-8b	130-50	1	1	3	0	3	4	3	0	6.63	27.76	25.5	49.87	12.02
1-023-8b	130-50	1	0	3	2	5	2	2	0	12.47	28.69	47.93	37.26	30.98
1-024-8b	130-50	1	1	3	0	5	4	2	0	4.87	23.63	35.56	34.31	12.22
1-025-6b	130-50	1	1	0	0	2	2	2	0	3.5	13.16	30.94	28.05	4.74
1-026-8b	130-50	1	1	3	1	1	4	2	0	7.3	19.54	45.16	38.91	12.94
1-027-8b	130-50	1	0	3	0	2	2	3	0	9.75	26.6	31.22	40.54	13.46
1-028-8b	130-50	1	0	3	0	2	2	3	0	5.85	19.14	24.49	38.66	9.86
1-029-8b	130-50	1	1	3	1	0	4	1	0	5.26	21.01	26.58	34.96	6.10
1-030-8b	130-50	1	1	0	2	2	0	2	0	4.07	14.49	32.28	38.47	12.32
1-031-8b	130-50	1	0	0	0	0	2	3	0	4.2	27.37	20	31.24	3.00
1-032-8b	130-50	1	0	0	0	2	4	3	0	8.39	24.49	28.13	31.54	8.32
1-033-8b	130-50	1	1	0	0	5	4	2	0	5.92	19.57	32.98	48.47	11.96
1-034-8b	130-50	2	0	0	0	5	2	6	0	0	0	26.25	41.61	9.90
1-035-8b	130-50	1	0	0	0	4	2	3	0	4.83	18.24	24.79	32.44	4.54
1-036-8b	130-50	1	1	0	0	3	3	3	0	2.38	13.58	30.76	20.56	4.22
1-037-8b	130-50	2	0	0	2	1	4	7	0	0	0	22.86	20.32	2.70
1-038-8b	130-50	1	1	0	0	5	4	2	1	2.02	6.8	26.43	21.93	4.12
1-039-8b	130-50	1	1	0	1	1	4	3	0	7.91	30.98	25.6	30.64	7.00
1-040-8b	130-50	1	0	0	0	0	4	2	0	1.35	10.86	14.02	27.73	1.16
1-041-8b	130-50	1	1	0	0	3	2	3	0	2.93	9.71	17.89	17.35	1.22
1-042-8b	130-50	1	1	0	0	4	2	2	0	2.98	13.43	24.27	23.34	3.08
1-043-8b	130-50	2	0	0	0	3	0	7	0	0	0	0	0	5.64
1-044-8b	130-50	1	0	0	0	4	2	3	0	3.61	12.39	23.13	27.31	3.98
1-045-8b	130-50	1	1	0	0	0	4	2	0	8.3	13.67	41.39	13.43	4.30
1-046-8b	130-50	1	0	3	2	3	2	3	0	5.34	17.72	21.73	33.36	4.24
1-047-8b	130-50	1	1	0	0	4	4	3	0	3.51	8.24	14.01	38.24	3.86
1-048-8b	130-50	1	0	0	0	2	4	3	0	7.89	18.94	32.03	24.98	9.60
1-049-8b	130-50	1	1	0	0	3	2	2	0	4.48	13.36	33.98	16.93	4.54
1-050-8b	130-50	2	0	0	0	2	2	7	0	0	0	24.18	16.67	2.48

1-051-8b	130-50	3	0	0	0	3	0	7	0	0	0	0	0	3.08
1-052-8b	130-50	1	1	3	0	5	4	2	0	6.05	19.9	29.3	35.05	9.24
1-053-8b	130-50	1	1	3	2	6	4	3	0	3.92	26.02	27.85	38.32	5.78
1-054-8b	130-50	1	1	0	0	5	4	2	0	10.63	21.06	33.5	24.7	6.74
1-055-8b	130-50	1	0	0	0	5	3	3	0	3.48	14.03	21.96	28.15	3.34
1-056-8b	130-50	1	0	0	0	5	4	3	0	3.02	23.08	24.58	33.83	5.26
1-057-8b	130-50	1	0	0	0	6	2	3	0	5.31	18.27	20.18	23.34	2.88
1-058-8b	130-50	1	0	3	2	6	4	3	0	7.23	25.35	30.64	39.37	11.84
1-059-8b	130-50	2	0	0	0	2	4	7	0	0	0	0	0	3.54
1-060-8b	130-50	1	0	0	0	3	2	2	0	8.35	22.49	16.59	35.67	5.24
1-061-8b	130-50	1	0	0	0	4	2	2	0	2.94	12.45	22.8	23.59	2.32
1-062-8b	130-50	1	1	0	0	4	2	2	0	6.67	16.59	26.05	16.17	3.50
1-063-8b	130-50	1	0	0	0	0	2	2	0	3.48	13.38	17.84	19.05	1.22
1-064-8b	130-50	1	0	0	0	3	2	2	0	3.56	18.69	19.33	29.32	2.90
1-065-8b	130-50	1	1	0	0	4	4	3	0	8.96	17.08	31.19	23.24	5.00
1-066-8b	130-50	1	0	0	0	0	2	2	0	9.17	20.98	18.98	22.06	2.78
1-067-8b	130-50	1	1	4	0	2	4	2	0	3.77	7.68	21.25	10.73	0.68
1-068-8b	130-50	1	1	0	0	4	2	2	0	3.23	15.6	19.22	17.96	1.60
1-069-8b	130-50	1	0	0	1	1	2	2	0	1.99	10.45	15.54	20.33	1.46
1-070-8b	130-50	1	0	0	0	3	2	3	0	1.53	7.6	16.45	18.67	1.12
1-071-8b	130-50	1	0	0	2	4	4	2	0	3.17	11.67	24.07	18.12	1.78
1-072-8b	130-50	1	1	0	1	2	2	3	0	2.73	6.92	19.98	9.82	0.74
1-073-8b	130-50	1	0	0	0	4	2	2	0	3.14	10.35	15.23	18.28	1.40
1-074-8b	130-50	1	1	0	0	4	2	2	0	3.62	8.91	16.88	13.33	0.84
1-075-8b	130-50	1	1	0	0	3	4	2	0	3.1	8.64	16.57	18.63	1.10
1-076-8b	130-50	1	1	0	0	0	4	3	0	2.58	17.72	13.99	18.18	1.06
1-077-8b	130-50	1	1	0	0	6	4	6	0	3.33	13.29	17.18	24.14	2.56
1-078-8b	130-50	1	1	0	0	4	4	3	0	2.26	14.98	22.53	14.94	1.40
1-079-8b	130-50	1	1	0	0	2	2	2	0	1.72	5.66	19.95	9.61	0.56
1-080-8b	130-50	1	0	0	0	0	4	2	0	1.5	6.61	19.39	15.71	0.96
1-081-8b	130-50	1	0	0	0	3	2	3	0	1.76	8.31	11.67	19.87	0.90
1-082-8b	130-50	1	1	0	0	3	2	2	0	2.77	10.39	16.9	15.98	0.78
1-083-8b	130-50	1	0	0	0	6	2	6	0	1.02	10.4	14.21	16.44	0.58

1-084-8b	130-50	1	0	0	0	5	4	3	0	2.1	14.67	14.25	16.67	0.80
1-085-8b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	0.72
1-086-8b	130-50	1	0	0	0	3	2	2	0	1.17	4.87	20.47	10.16	0.74
1-087-8b	130-50	1	0	0	0	4	2	3	0	2.13	8.88	13.12	17.21	0.90
1-088-8b	130-50	1	1	0	0	0	4	2	0	5.81	15.22	10.04	15.28	0.44
1-89-8b	130-50	1	0	0	0	0	2	2	0	1.25	9.95	8.8	14.11	0.30
1-090-8b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	0.56
1-091-8b	130-50	1	1	0	0	0	4	1	1	1.36	6.23	9.39	11.5	0.26
1-092-8b	130-50	3	0	0	0	6	0	7	0	0	0	0	0	0.54
1-097-8b	130-50	1	0	0	0	6	4	2	0	5.34	14.83	21.99	16.99	2.14
1-114-8b	130-50	1	0	0	0	5	2	3	0	5	37.52	33.04	60.21	51.40
1-115-8b	130-50	1	1	3	2	3	4	2	0	6.54	19.33	43.83	60.46	31.66
1-116-8b	130-50	3	0	0	1	2	0	0	0	0	0	0	0	71.66
1-118-48	130-50	1	1	3	0	5	4	3	0	4.89	37.13	33.84	43.59	13.12
1-121-8b	130-50	1	1	0	0	6	4	3	0	10.96	23.55	16.64	29.04	3.24
1-122-8b	130-50	2	0	0	0	6	0	7	0	0	0	0	0	6.86
1-001-11b	150-60	1	1	0	0	4	4	2	0	3.3	16.62	20.79	21.46	1.46
1-002-11b	150-60	1	0	3	1	1	2	2	0	13.79	51.61	19.75	68.39	21.24
1-003-11b	150-60	1	1	0	0	5	4	2	0	3.25	11.99	24.14	24.34	3.92
1-004-11b	150-60	1	1	3	0	4	4	2	0	7.91	27.68	33.38	30.31	7.48
1-005-11b	150-60	1	1	3	0	6	4	2	0	5.5	16.02	31.92	25.67	4.20
1-006-11b	150-60	1	0	0	0	0	2	2	0	3.28	18.4	16.43	22.46	1.32
1-007-11b	150-60	2	0	0	0	6	0	7	0	0	0	0	0	2.16
1-008-11b	150-60	1	1	3	0	4	4	3	0	7.11	20.78	27.51	60.52	17.56
1-009-11b	150-60	1	1	3	1	0	4	2	0	12.08	27.97	32.82	29.75	7.42
1-010-11b	150-60	1	1	3	2	5	2	2	0	6.67	21.03	41.69	24.42	11.40
1-011-11b	150-60	1	1	0	0	3	4	2	0	1.53	4.85	17.47	11.85	0.68
1-012-11b	150-60	1	1	0	0	5	4	6	0	2.17	14.72	17.6	22.79	2.16
1-013-11b	150-60	1	1	0	0	5	4	2	0	2.82	8.13	21.98	14.16	1.50
1-014-11b	150-60	1	0	0	0	4	2	2	0	1.9	6.68	18.23	19.3	1.68
1-015-11b	150-60	2	0	0	2	6	0	0	0	0	0	0	0	1.18
1-016-11b	150-60	1	0	0	2	4	4	2	0	1.68	9.03	17.25	23.33	2.90
1-017-11b	150-60	1	1	0	0	4	4	3	0	5.79	26.18	14.48	28.48	2.76

1-018-11b	150-60	2	0	0	0	3	2	7	0	0	0	0	0	1.44
1-019-11b	150-60	2	0	0	0	2	0	0	0	0	0	0	0	1.12
1-020-11b	150-60	1	1	0	0	4	4	3	0	1.71	8.05	25.85	23.84	2.76
1-021-11b	150-60	1	1	0	0	4	4	2	0	3.44	12.82	25.11	15.94	1.98
1-022-11b	150-60	1	0	0	0	5	2	3	0	2.54	16.51	27.72	22	3.48
1-023-11b	150-60	1	0	0	0	5	2	3	0	1.87	9.61	16.52	22.06	1.54
1-024-11b	150-60	1	0	0	0	3	2	2	0	2.81	16.79	20.16	27.3	2.94
1-025-11b	150-60	1	0	0	0	3	4	2	0	2.29	6.94	22.71	32.06	5.94
1-001-13b	150-60	1	1	0	0	3	4	3	0	1.4	3.55	12.97	7.97	0.24
1-002-13b	150-60	1	1	0	0	5	4	2	0	2.31	6.35	11.07	11.84	0.46
1-003-13b	150-60	1	0	0	0	5	2	2	0	1.28	2.5	13.08	9.51	0.28
1-004-13b	150-60	1	1	0	0	2	4	2	0	1.19	5.4	9.23	10.47	0.22
1-005-13b	150-60	1	0	0	0	2	2	2	0	1.69	6.36	11.62	8.7	0.28
1-006-13b	150-60	1	0	0	0	3	4	2	0	1.52	11.42	11.38	15.57	0.52
1-007-13b	150-60	3	0	0	0	6	0	7	0	0	0	0	0	0.36
1-008-13b	150-60	1	1	0	0	3	4	2	0	1.31	5.56	10.83	11.83	0.30
1-009-13b	150-60	1	0	4	2	3	2	3	0	2.68	8.15	12.47	9.34	0.54
1-010-13b	150-60	1	0	0	1	1	2	2	0	1.67	5.09	9.15	19.9	0.60
1-011-13b	150-60	1	0	0	0	6	2	3	0	2.27	12.99	12.38	15.06	0.44
1-012-13b	150-60	3	0	0	0	0	0	7	0	0	0	0	0	0.54
1-013-13b	150-60	1	1	0	0	3	4	2	0	2.18	9.55	9.42	13.59	0.26
1-014-13b	150-60	1	0	0	0	3	2	3	0	1.55	7.48	10.46	13.63	0.40
1-015-13b	150-60	1	0	0	0	3	2	2	0	1.28	13.14	8.54	12.74	0.24
1-016-13b	150-60	1	2	0	0	6	0	7	0	0	0	0	0	0.56
1-017-13b	150-60	1	1	0	0	3	4	2	0	2.81	9.51	11.77	9.81	0.36
1-018-13b	150-60	1	0	0	0	3	2	3	0	1.71	11.04	14.97	20.7	0.76
1-019-13b	150-60	2	0	0	2	2	0	7	0	0	0	0	0	0.42
1-020-13b	150-60	3	0	0	0	0	0	7	0	0	0	0	0	0.52
1-021-13b	150-60	2	0	0	0	3	0	7	0	0	0	0	0	0.46
1-022-13b	150-60	1	0	0	0	6	2	3	0	5.37	14.61	13.62	14.18	1.24
1-023-13b	150-60	2	0	0	0	0	0	0	0	0	0	0	0	0.90
1-024-13b	150-60	1	1	0	0	2	2	2	0	5.29	9.16	22.59	10.27	1.92
1-025-13b	150-60	2	0	0	0	5	0	0	0	0	0	0	0	1.04

1-026-13b	150-60	1	1	0	0	4	4	3	0	2.12	13.86	14.62	15.22	0.60
1-027-13b	150-60	1	0	0	0	4	2	2	0	5.23	14.93	15.69	18.92	1.70
1-028-13b	150-60	1	0	0	0	2	2	3	0	3.42	9.16	14.8	18.02	1.08
1-029-13b	150-60	1	0	0	0	6	4	2	0	1.22	5.55	19.02	11.33	0.86
1-030-13b	150-60	2	0	0	0	2	0	0	0	0	0	0	0	0.86
1-031-13b	150-60	1	1	0	0	0	4	2	0	2.22	13.64	14.13	18.86	0.88
1-032-13b	150-60	1	1	0	0	3	4	2	0	2.26	5.81	14.76	16.7	0.70
1-033-13b	150-60	1	0	0	1	2	2	2	0	2.3	12.47	18.62	22.61	1.54
1-034-13b	150-60	1	0	0	0	3	2	3	0	0.97	13.84	13.17	17.11	0.94
1-035-13b	150-60	2	0	0	0	3	0	7	0	0	0	0	0	1.04
1-036-13b	150-60	2	0	0	0	3	0	7	0	0	0	0	0	1.34
1-037-13b	150-60	1	0	0	0	4	2	2	0	1.92	2.84	22.08	14.64	1.28
1-038-13b	150-60	2	0	0	0	0	0	7	0	0	0	0	0	0.84
1-039-13b	150-60	1	0	0	0	3	2	2	0	2.4	16.73	14.35	20.64	1.42
1-040-13b	150-60	1	1	0	2	0	4	3	0	6.5	20.06	10.69	19.95	1.24
1-041-13b	150-60	1	0	0	0	4	4	3	0	6.58	24.79	10.19	25.22	1.68
1-042-13b	150-60	1	0	0	0	2	2	3	0	3.74	13.19	15.59	22.04	1.30
1-043-13b	150-60	3	0	0	0	6	0	7	0	0	0	0	0	1.90
1-044-13b	150-60	1	1	0	1	1	4	3	0	5.04	18.67	15.6	23.66	1.32
1-045-13b	150-60	1	0	0	0	2	2	6	0	0	0	15.99	16.11	0.96
1-046-13b	150-60	1	0	0	0	2	2	2	0	2.54	13.67	17.95	23.55	1.34
1-047-13b	150-60	1	0	0	0	3	2	3	0	6.57	16.66	18.41	18.94	2.40
1-048-13b	150-60	1	1	0	0	5	4	3	0	3.25	10.27	15.16	22.54	1.98
1-049-13b	150-60	1	0	0	0	3	2	2	0	2.69	10.05	21.93	28.73	3.32
1-050-13b	150-60	3	0	0	0	6	0	7	0	0	0	0	0	1.70
1-051-13b	150-60	2	0	0	0	3	4	7	0	0	0	14.24	21.79	1.36
1-052-13b	150-60	1	0	0	0	2	2	2	0	3.08	11.01	21.8	14.33	1.12
1-053-13b	150-60	1	0	0	0	3	4	2	0	1.9	9.56	23.3	16.46	1.50
1-054-13b	150-60	1	0	0	0	2	2	2	0	3.55	9.95	20.16	18.61	1.86
1-055-13b	150-60	1	0	0	0	4	2	3	0	2.28	10.63	22.85	20.79	2.06
1-056-13b	150-60	1	0	0	0	3	2	2	0	4.85	11.6	22.95	19.91	2.42
1-057-13b	150-60	1	0	0	0	3	2	3	0	2.49	17.36	18.08	24.07	1.40
1-058-13b	150-60	1	0	0	0	6	2	3	0	1.11	4.87	20.19	14.16	1.04

1-59-13b	150-60	1	0	0	2	0	2	2	0	3.5	16.31	18.76	18.28	2.28
1-060-13b	150-60	1	0	0	0	4	2	3	0	4.74	32.3	13.03	32.08	2.90
1-061-13b	150-60	1	1	0	0	5	4	3	0	4.15	18.21	20.31	21.57	1.72
1-062-13b	150-60	1	0	0	0	5	2	2	0	2.69	6.35	26.78	23.3	4.74
1-063-13b	150-60	1	0	0	0	2	2	2	0	2.44	9.62	18.15	32.58	2.38
1-064-13b	150-60	3	0	0	0	4	0	7	0	0	0	0	0	4.32
1-065-13b	150-60	2	0	0	0	6	0	7	0	0	0	0	0	2.66
1-066-13b	150-60	1	1	0	1	2	4	3	0	9.58	24.08	14.19	26.09	1.92
1-067-13b	150-60	1	0	0	0	5	2	3	0	3.21	19.39	22.34	27.31	4.52
1-068-13b	150-60	3	0	0	0	6	0	0	0	0	0	0	0	5.20
1-069-13b	150-60	1	1	0	0	5	4	2	0	2.85	7.51	27.87	22.41	2.86
1-070-13b	150-60	1	1	0	0	2	4	2	0	2.92	12.05	29.52	34.25	3.60
1-071-13b	150-60	1	0	0	0	3	2	2	0	2.02	10.03	29.38	29.63	7.22
1-072-13b	150-60	1	0	0	0	2	2	2	0	8.74	13.04	28.26	25.41	5.74
1-073-13b	150-60	1	0	0	0	4	4	2	0	7.1	16.48	22.9	25.26	3.88
1-074-13b	150-60	1	1	0	0	3	4	3	0	0.9	17.33	30.63	26.36	4.94
1-075-13b	150-60	1	1	0	0	5	4	3	0	3.36	23.01	26.64	29.31	5.56
1-076-13b	150-60	1	0	0	0	5	2	3	0	5.03	17.5	28.94	23.75	4.06
1-077-13b	150-60	3	0	0	0	6	0	0	0	0	0	0	0	6.54
1-078-13b	150-60	1	0	0	2	6	4	1	0	3.39	6.64	43.37	12.18	4.56
1-079-13b	150-60	1	1	3	0	4	4	3	0	3.76	18	25.27	37.64	4.34
1-080-13b	150-60	1	0	0	0	4	2	3	0	4.29	23.83	31.79	36.47	7.48
1-081-13b	150-60	1	0	0	0	3	2	3	0	7.04	29.79	25.24	35.32	8.30
1-082-13b	150-60	1	1	0	2	5	2	3	0	8.57	12.87	56.27	20.78	11.68
1-083-13b	150-60	1	0	3	0	0	2	2	0	7.55	14.22	40	31.33	11.30
1-084-13b	150-60	1	1	3	2	5	3	3	0	7.66	51.33	40.59	47.42	22.66
1-085-13b	150-60	1	1	3	0	6	4	2	0	9.86	50.06	27.54	51.46	9.42
1-086-13b	150-60	1	1	3	0	5	4	2	0	10.85	35.78	38.56	37.23	10.82
1-087-13b	150-60	1	0	3	0	5	2	3	0	8.07	19.5	33.73	39.85	12.20
1-088-13b	150-60	1	1	3	0	4	4	3	0	9.22	50.44	51.8	52.02	25.16
1-089-13b	150-60	1	1	0	1	0	4	3	0	21.11	51.55	25.74	53.97	25.00
1-090-13b	150-60	1	0	0	0	0	2	2	0	3.26	7.71	24.17	13.13	0.98
1-091-13b	150-60	2	0	0	0	6	0	0	0	0	0	0	0	0.54

1-092-13b	150-60	1	1	1	2	3	4	3	0	5.79	30.88	30.46	74.59	23.18
1-093-13b	150-60	1	1	2	2	2	4	2	0	7.07	17.43	55.29	66.82	43.06
1-001-25b	170-80	1	1	3	1	5	4	2	0	5.45	25.49	58.97	84.16	52.20
1-002-25b	170-80	1	1	1	0	4	4	2	0	3.99	15.01	26.12	29.32	2.46
1-003-25b	170-80	1	1	1	2	5	4	3	0	5.81	21.76	18.93	36.5	5.72
1-004-25b	170-80	1	1	3	2	2	4	3	0	4.96	26.15	41.66	45.78	10.18
1-005-25b	170-80	1	1	3	0	2	4	3	0	15.32	39.75	33.88	39.64	17.10
1-006-25b	170-80	1	0	3	2	4	4	2	0	2.04	18.13	41.15	44.25	11.62
1-007-25b	170-80	1	1	3	0	5	4	3	0	16.12	54.25	37.39	56.79	21.72
1-008-25b	170-80	1	0	3	0	4	4	3	0	10.83	15.6	51.54	56.93	42.20
1-009-25b	170-80	1	0	3	0	6	2	2	0	1.86	5.87	35.06	44.45	17.74
1-010-25b	170-80	1	0	3	2	2	2	2	0	6.64	32.46	39.48	38.84	9.12
1-011-25b	270-80	1	1	3	0	5	4	2	0	2.7	12.7	44.6	21.44	7.58
1-012-25b	170-80	1	0	0	0	5	2	2	0	3.26	20.22	22.68	37.35	3.54
1-013-25b	170-80	1	1	3	1	2	4	2	0	6.72	22.55	39.42	43.67	13.20
1-014-25b	170-80	1	1	0	2	2	2	3	0	1.93	9.4	24.19	17.47	2.02
1-015-25b	170-80	1	1	0	0	3	4	3	0	2.06	18.67	23.31	20.9	1.76
1-016-25b	170-80	1	1	0	0	6	4	2	0	5.46	23.45	15.88	30.85	1.86
1-017-25b	170-80	1	0	0	0	3	2	2	0	1.48	6.48	21.94	26.49	2.02
1-018-25b	170-80	2	0	0	0	3	4	7	0	0	0	41.88	21.65	4.46
1-019-25b	170-80	1	0	0	0	3	2	3	0	3.73	15.13	22.66	25.71	3.36
1-020-25b	170-80	1	1	0	0	4	4	2	0	4.44	16.6	16.91	20.34	1.18
1-021-25b	170-80	1	0	3	0	5	2	3	0	3.16	23.7	29.1	38.89	10.12
1-022-25b	170-80	1	1	3	0	5	4	3	0	5.95	17.17	26.55	26.57	4.56
1-023-25b	170-80	1	0	0	2	3	2	3	0	4.27	8.95	21.07	20.61	2.74
1-024-25b	170-80	1	1	0	0	3	4	2	0	2.95	21.65	19.75	21.93	1.46
1-025-25b	170-80	3	0	0	0	5	0	0	0	0	0	0	0	13.06
1-026-25b	170-80	1	1	0	0	5	4	2	0	1.25	18.95	15.03	25.07	1.60
1-026-25b	170-80	1	0	3	0	5	4	3	0	7.16	32.6	33.29	38.69	8.50
1-028-25b	170-80	1	0	0	0	6	2	2	0	3.02	17.57	22.02	17.5	1.30
1-029-25b	170-80	1	0	0	0	3	2	2	0	3.41	13.63	23.7	14.25	2.02
1-030-25b	170-80	1	1	0	0	4	4	2	0	3.02	5.96	26.49	16.77	1.82
1-031-25b	170-80	1	1	1	2	0	4	2	0	4.88	17.97	20.74	35.53	3.22

1-032-25b	170-80	3	0	0	1	3	0	0	0	0	0	0	0	2.92
1-033-25b	170-80	1	1	3	0	6	4	3	0	3.48	25.47	20.07	25.79	2.16
1-034-25b	170-80	1	1	3	0	4	4	3	0	4.14	16.97	24.34	23.03	2.50
1-035-25b	170-80	1	0	0	0	5	2	3	0	6.51	21.21	30.53	33.15	5.24
1-036-25b	170-80	1	0	3	0	4	2	3	0	4.45	24.27	20.07	39.19	4.72
1-037-25b	170-80	1	1	0	0	2	4	2	0	2.08	11.06	20.14	15.57	1.02
1-038-25b	170-80	1	1	0	0	4	4	2	0	9.01	23.07	16.27	23.51	2.36
1-039-25b	170-80	1	0	0	0	4	2	3	0	2.45	17.04	16.1	21.85	1.50
1-040-25b	170-80	2	0	0	0	0	0	7	0	0	0	0	0	0.84
1-041-25b	170-80	1	1	0	0	0	4	3	0	2.44	18.38	12.23	24.5	0.86
1-042-25b	170-80	1	1	0	0	4	4	2	0	6.76	20.25	13.84	24.05	1.86
1-043-25b	170-80	3	0	0	0	6	0	7	0	0	0	0	0	0.60
1-044-25b	170-80	1	0	0	0	6	4	3	0	3.77	19.04	12.04	19	0.80
1-045-25b	170-80	1	1	0	0	5	4	2	0	1.53	5.55	17.24	16.95	0.46
1-046-25b	170-80	2	0	0	0	2	0	7	0	0	0	13.79	12.02	0.54
1-047-25b	170-80	1	0	0	2	6	2	3	0	2.25	12.8	19.09	19.76	1.02
1-48-25b	170-80	1	0	0	0	3	2	3	0	6.43	12.59	18.67	20.71	2.70
1-049-25b	170-80	1	0	0	2	2	2	2	0	2.57	5.26	22.66	17.76	1.34
1-050-25b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	0.96
1-051-25b	170-80	1	1	0	0	3	4	3	0	1.45	6.37	12.6	12.12	0.38
1-052-25b	170-80	1	0	0	0	2	2	2	0	2.17	9.69	13	16.35	0.50
1-053-25b	170-80	1	0	0	0	6	2	3	0	2.78	9.61	16.34	15.48	0.66
1-054-25b	170-80	1	0	0	0	0	2	2	0	1.55	7.85	11.35	17.49	0.44
1-055-25b	170-80	1	1	0	0	2	4	2	0	3.82	11.26	10.7	10.89	0.34
1-056-25b	170-80	2	0	0	0	0	0	7	0	0	0	0	0	0.20
1-057-25b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	2.48
1-058-25b	170-80	1	0	0	2	1	2	2	0	1.55	10.1	24.49	10.79	1.02
1-059-25b	170-80	1	0	0	0	6	4	2	0	1.35	7.06	10.34	11.85	0.24
1-060-25b	170-80	1	0	0	0	2	2	2	0	2.77	11.39	15.94	15.63	1.04
1-061-25b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	0.36
1-062-25b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	0.50
1-063-25b	170-80	1	1	0	2	0	4	2	0	3.06	13.91	12.75	19.6	0.84
1-064-25b	170-80	1	0	0	0	0	2	3	0	5.63	15.91	17.93	16.52	1.88

1-065-25b	170-80	1	0	0	0	4	2	3	0	2.78	11.08	14.28	13.83	0.78
1-066-25b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.76
1-067-25b	170-80	3	0	0	0	6	0	7	0	0	0	0	0	1.10
1-068-25b	170-80	1	1	0	0	3	4	2	0	3.51	11.01	19.4	9.33	0.60
1-069-25b	170-80	1	1	0	0	4	4	2	0	4.25	10.07	19.61	18.96	0.92
1-070-25b	170-80	1	1	0	0	0	4	2	0	5.42	12.91	9.65	20.8	0.62
1-071-25b	170-80	2	0	0	2	6	4	0	0	0	0	8.03	16.89	0.30
1-072-25b	170-80	2	0	0	0	3	0	7	0	0	0	0	0	1.16
1-073-25b	170-80	1	0	0	0	4	2	2	0	1.16	4.42	17.77	13.16	0.76
1-074-25b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.72
1-075-25b	170-80	1	0	0	0	6	2	2	0	2.36	7.4	14.67	15.52	0.64
1-076-25b	170-80	1	1	0	2	5	4	3	0	18.59	79.32	67.21	97.01	234.00
1-001-20b	160-70	1	1	3	2	0	4	1	0	8.7	52.79	37.58	57.98	19.92
1-002-20b	160-70	3	0	0	2	6	0	0	0	0	0	0	0	31.54
1-003-20b	160-70	1	1	3	2	6	4	1	0	17.43	40.92	50.12	60.75	53.20
1-004-20b	160-70	1	0	0	0	3	2	2	0	2.69	22.39	32.3	35.28	6.06
1-005-20b	160-70	1	0	3	2	5	4	3	0	12.74	36.88	30.98	58.56	26.90
1-006-20b	160-70	1	1	3	0	4	4	3	0	9.06	28.71	46.48	43.74	20.94
1-007-20b	160-70	1	1	3	0	5	4	2	0	2.25	9.73	31.17	52.4	18.34
1-008-20b	160-70	1	0	3	0	6	4	2	0	19.37	36.98	53.89	37.74	37.18
1-009-20b	160-70	1	1	3	0	6	4	2	0	10.12	40.89	35.16	45.81	15.22
1-010-20b	160-70	1	1	0	0	4	2	2	0	3.97	23.85	15.45	29.76	1.98
1-011-20b	160-70	1	1	3	0	2	4	2	0	7.09	24.19	27.22	28.71	5.56
1-012-20b	160-70	1	1	3	0	5	4	3	0	4.1	19.43	39.2	27.42	6.26
1-013-20b	160-70	1	0	3	0	2	2	3	0	5.58	13.99	45.7	37.95	11.96
1-014-20b	160-70	1	1	0	1	0	4	3	0	18.63	56.31	38.31	51.74	23.32
1-015-20b	160-70	1	0	0	0	2	2	7	0	0	0	26.98	42.9	15.30
1-016-20b	160-70	1	1	3	0	3	3	3	0	4.93	27.6	53.73	40.85	19.58
1-017-20b	160-70	1	0	0	1	3	2	3	0	4.48	29.46	36.24	43.08	8.14
1-018-20b	160-70	1	0	3	2	2	4	1	0	7.96	39.25	41.49	39.55	19.78
1-019-20b	160-70	1	1	3	2	2	4	2	0	8.8	33.69	29.64	39.4	10.28
1-020-20b	160-70	1	1	3	2	4	2	2	0	4.76	25.26	21.19	45.61	11.28
1-021-20b	160-70	1	1	3	1	3	3	2	0	11.42	41.06	32.24	60.84	26.54

1-022-20b	160-70	1	1	3	0	4	4	2	0	3.67	17.49	34.54	50.95	9.50
1-023-20b	160-70	3	0	0	0	2	0	7	0	0	0	0	0	2.32
1-024-20b	160-70	1	1	3	0	3	4	2	0	10.93	36.46	21.26	43.9	8.36
1-025-20b	160-70	3	0	0	0	6	0	0	0	0	0	0	0	1.84
1-026-20b	160-70	1	0	0	0	2	3	4	0	7.56	25.39	26.33	31.8	5.88
1-027-20b	160-70	1	1	3	0	6	4	2	0	8.29	25.76	19.54	32.95	3.82
1-028-20b	160-70	1	0	0	0	0	2	2	0	8.7	16.18	28.72	22.5	7.56
1-029-20b	160-70	1	1	0	0	4	4	2	0	2.71	14.26	19.54	24.72	2.32
1-030-20b	160-70	1	0	0	0	6	4	2	0	5.66	13.57	17.61	16.71	1.62
1-031-20b	160-70	1	0	0	0	3	2	2	0	4.3	11.83	19.83	18.79	1.64
1-032-20b	160-70	1	0	0	0	2	4	6	0	0	0	15.35	21.1	1.34
1-033-20b	160-70	2	0	0	0	4	4	0	0	0	0	36.95	25.89	4.90
1-034-20b	160-70	1	0	0	0	6	4	6	0	0	0	28.97	28.43	3.56
1-035-20b	160-70	1	1	0	0	6	2	2	0	5.84	16.15	17.33	17.48	1.48
1-036-20b	160-70	1	0	0	0	3	4	3	0	2.68	7.35	28.65	19.05	3.24
1-037-20b	160-70	1	1	0	0	0	2	3	0	1.93	11.05	25.97	32.92	2.44
1-038-20b	160-70	2	0	0	0	3	0	0	0	0	0	0	0	7.24
1-039-20b	160-70	1	0	3	0	2	2	2	0	5.55	20.31	33.69	28.59	6.42
1-040-20b	160-70	1	0	3	0	4	4	2	0	4.71	25.39	42.99	36.42	11.58
1-041-20b	160-70	1	0	0	0	2	2	2	0	6.37	18.2	31.89	35.01	6.54
1-042-20b	160-70	2	0	0	1	0	0	7	0	0	0	25.86	35.6	7.10
1-043-20b	160-70	1	0	0	0	2	2	3	0	6.27	14.89	23.64	30.7	3.52
1-044-20b	160-70	1	0	0	0	3	2	2	0	5.6	12.84	22.73	24.69	2.66
1-045-20b	160-70	1	1	3	0	3	4	2	0	2.77	15.82	18.82	34.86	2.26
1-046-20b	160-70	2	0	0	2	4	0	0	0	0	0	0	0	3.12
1-047-20b	160-70	1	0	0	0	5	4	2	0	8.32	30.54	47.07	39.48	12.84
1-048-20b	160-70	1	0	3	0	4	2	3	0	4.17	15.8	36.35	38.69	11.20
1-049-20b	160-70	1	1	0	0	2	4	2	0	4.38	14.25	15.95	24.33	1.58
1-050-20b	160-70	1	0	0	1	1	2	2	0	5.47	12.31	17.75	15.77	2.14
1-051-20b	160-70	1	1	0	1	3	4	2	0	2.15	13.29	15.52	25.39	0.92
1-052-20b	160-70	1	1	3	0	3	2	2	0	6.43	17.93	42.06	26.64	8.68
1-053-20b	160-70	1	0	0	0	0	4	2	0	4.27	9.08	29.51	14.55	1.86
1-054-20b	160-70	1	0	3	0	4	4	2	0	4.49	22.06	25.66	36.33	7.34

1-05-20b	160-70	1	1	3	0	0	4	3	0	8.92	42.91	36.48	42.97	14.26
1-056-20b	160-70	1	1	0	0	2	4	3	0	3.45	24.04	13.62	32.03	2.00
1-057-20b	160-70	1	0	0	0	6	4	7	0	0	0	51.94	35.42	11.80
1-058-20b	160-70	1	0	0	0	6	2	2	0	1.9	5.38	37.69	27.43	7.70
1-059-20b	160-70	1	1	3	0	4	4	2	0	8.18	26.98	34.73	43.08	13.56
1-060-20b	160-70	1	1	3	2	4	4	3	0	5.71	36.28	30.17	57.92	23.32
1-061-20b	160-70	1	1	3	0	3	4	3	0	6.95	36.1	55.38	37.14	14.86
1-061-20b	160-70	1	1	0	0	5	4	2	0	5.88	15.12	17.84	45.92	6.74
1-063-20b	160-70	1	1	1	0	4	4	2	0	10.7	24.61	38	69.22	34.56
1-064-20b	160-70	2	0	0	0	3	0	0	0	0	0	0	0	2.74
1-065-20b	160-70	1	0	0	2	0	2	2	0	3.42	15.81	17.7	26.6	2.40
1-066-20b	160-70	2	0	0	0	0	0	7	0	0	0	0	0	1.98
1-067-20b	160-70	2	0	0	0	2	0	0	0	0	0	0	0	2.46
1-068-20b	160-70	2	0	0	0	3	0	7	0	0	0	0	0	0.98
1-069-20b	160-70	1	1	0	0	2	4	2	0	3.6	6.95	17.48	10.05	0.46
1-070-20b	160-70	1	0	0	2	5	4	2	0	6.16	24.91	44.01	33.43	16.64
1-071-20b	160-70	1	0	0	0	3	4	2	0	4.56	13.63	17.61	14.78	1.04
1-072-20b	160-70	1	0	0	0	5	2	3	0	3.61	13.96	27.46	20.71	3.24
1-073-20b	160-70	2	0	0	0	4	4	7	0	0	0	22.82	32.86	3.16
1-074-20b	160-70	1	1	0	2	2	4	2	0	2.74	12.87	14.57	20.73	0.96
1-075-20b	160-70	1	1	0	0	2	4	2	0	2.18	25.44	32.79	16.4	1.98
1-076-20b	160-70	1	1	0	0	2	4	2	0	2.99	7.45	18.86	13.21	0.68
1-077-20b	160-70	1	1	0	0	3	4	2	0	7.06	19.66	15.31	19.69	1.40
1-078-20b	160-70	1	0	0	1	6	4	1	0	6.51	20.27	18.87	21.35	1.66
1-079-20b	160-70	2	0	0	2	0	0	7	0	0	0	0	0	1.30
1-080-20b	160-70	1	1	0	2	0	4	2	0	3.65	9.64	21.27	23.98	2.42
1-081-20b	160-70	2	0	0	0	0	0	0	0	0	0	0	0	0.90
1-082-20b	160-70	1	0	0	0	0	2	2	0	1.75	9.61	13.47	22.88	0.94
1-083-20b	160-70	1	1	3	0	2	4	3	0	5.67	27.05	40.67	33.24	10.40
1-084-20b	160-70	1	0	0	0	2	4	2	0	2.56	11.28	18.03	13.27	0.78
1-085-20b	160-70	1	0	3	2	2	4	3	0	9.4	30	42.03	44.93	14.94
1-086-20b	160-70	1	1	3	0	4	4	2	0	3.64	18.04	31.05	41.05	5.82
1-087-20b	160-70	1	0	3	1	2	2	3	0	2.05	9.45	29.29	26.37	4.12

1-088-20b	160-70	1	1	3	1	1	4	2	0	7.67	20.67	29.15	32.7	7.48
1-089-20b	160-70	1	1	0	0	3	4	2	0	2.19	12.14	18.31	24.91	2.28
1-090-20b	160-70	1	1	0	0	4	4	3	0	1.56	15.11	24.49	28.18	3.92
1-091-20b	160-70	2	0	0	0	6	0	0	0	0	0	0	0	2.24
1-092-20b	160-70	1	0	0	2	0	4	3	0	5.22	15.91	25.46	33.38	4.32
1-093-20b	160-70	1	0	0	0	3	4	2	0	8.21	18.07	41.15	29.94	9.42
1-094-20b	160-70	1	1	3	0	3	2	2	0	3.63	16.63	36.98	22.12	4.50
1-095-20b	160-70	1	1	3	1	2	4	3	0	5.47	26.26	29.63	76.16	19.00
1-096-20b	160-70	1	1	0	0	6	4	2	0	10.28	27.27	14.94	28.03	2.28
1-097-20b	160-70	1	0	3	0	3	4	3	0	8.26	36.12	32.45	44.97	14.78
1-098-20b	160-70	1	1	3	0	4	4	3	0	3.12	17.11	27.85	35.77	6.62
1-099-20b	160-70	1	1	0	0	3	4	3	0	7.45	23.8	25.24	24.23	3.06
1-100-20b	160-70	1	1	0	0	4	4	3	0	4.35	9.93	20.78	19.65	1.96
1-101-20b	160-70	2	0	0	2	3	0	0	0	0	0	0	0	2.18
1-102-20b	160-70	2	0	0	2	2	4	7	0	0	0	0	0	2.16
1-103-20b	160-70	2	0	3	2	4	4	7	0	0	0	29.01	37.94	12.28
1-104-20b	160-70	1	1	0	0	4	4	2	0	4.26	12.91	17.4	22.06	1.84
1-105-20b	160-70	1	0	0	0	3	2	2	0	4.42	18.8	16.6	24.44	2.50
1-106-20b	160-70	1	1	0	0	2	4	2	0	2.98	11.56	12.63	15.55	0.46
1-107-20b	160-70	1	1	3	0	2	4	3	0	1.06	14.06	26.62	30.86	5.30
1-108-20b	160-70	2	0	0	0	4	0	7	0	0	0	0	0	1.10
1-109-20b	160-70	1	0	0	0	4	2	6	0	2.02	6.95	28.2	19.77	2.78
1-110-20b	160-70	2	0	0	0	3	0	7	0	0	0	0	0	2.94
1-111-20b	160-70	1	1	0	0	0	2	3	0	6.79	18.55	22.96	32.46	4.50
1-112-20b	160-70	2	0	0	0	2	0	7	0	0	0	0	0	0.28
1-113-20b	160-70	1	1	0	0	6	4	2	0	1.79	6.9	10.97	11.29	0.28
1-114-20b	160-70	1	0	0	1	2	2	2	0	1.72	12.31	15.75	21.23	0.86
1-11520b	160-70	2	0	0	0	0	0	7	0	0	0	0	0	0.40
1-116-20b	160-70	2	0	0	0	0	0	7	0	0	0	0	0	3.74
1-117-20b	160-70	2	0	0	0	6	0	0	0	0	0	0	0	10.40
1-118-20b	160-70	2	0	0	0	6	0	7	0	0	0	0	0	2.20
1-119-20b	160-70	2	0	0	0	6	0	7	0	0	0	0	0	1.16
1-120-20b	160-70	2	0	0	1	1	2	0	0	0	0	29.18	17.78	4.02

1-121-20b	160-70	1	0	0	0	3	2	2	0	3.25	20.93	18.93	32.29	3.42
1-122-20b	160-70	1	0	0	0	2	2	2	0	5.12	15.55	24.66	28.7	5.56
1-123-20b	160-70	1	0	0	0	2	2	3	0	5.43	14.39	22.86	23.91	6.92
1-124-20b	160-70	1	0	3	0	3	4	2	0	5.53	19.49	27.79	27.39	6.12
1-125-20b	160-70	1	0	0	0	6	4	2	0	1.12	4.29	16.7	8.85	0.46
1-126-20b	160-70	1	1	0	1	1	4	2	0	5.54	15.93	14.73	22.6	1.38
1-127-20b	160-70	2	0	0	0	6	0	7	0	0	0	19.39	23	1.62
1-128-20b	160-70	1	0	0	0	3	2	2	0	9.33	12.42	24.26	23.63	10.00
1-129-20b	160-70	2	0	0	0	2	0	7	0	0	0	0	0	2.10
1-130-20b	160-70	1	0	0	0	3	2	3	0	2.77	11.59	22.44	26.07	2.54
1-131-20b	160-70	1	1	0	2	3	4	2	0	3.5	13.22	20.14	19.83	1.62
1-132-20b	160-70	1	0	0	0	2	2	6	0	1.76	12.92	18.85	19.41	1.20
1-133-20b	160-70	1	0	0	0	2	2	2	0	3.6	12.46	19.17	15.87	1.58
1-134-20b	160-70	2	0	0	0	0	0	7	0	0	0	0	0	3.76
1-135-20b	160-70	1	0	0	0	2	2	2	0	4.1	16.2	12.84	22.17	1.72
1-136-20b	160-70	1	0	0	0	4	2	2	0	2.41	6.67	19.06	22.6	3.18
1-137-20b	160-70	1	1	0	0	4	3	2	0	2.77	6.87	11.98	16.96	0.92
1-138-20b	160-70	1	2	0	0	6	4	2	0	8.08	24.68	17.38	32.5	4.12
1-139-20b	160-70	1	0	0	0	0	4	2	0	4.55	29.89	13.94	29.39	2.10
1-140-20b	160-70	1	1	0	0	2	4	2	0	1.54	11.42	15.44	20.24	1.18
1-141-20b	160-70	1	1	0	0	6	4	2	0	6.21	10.28	19.89	19.87	3.52
1-142-20b	160-70	3	0	0	0	0	0	7	0	0	0	0	0	2.72
1-143-20b	160-70	2	0	0	0	6	0	0	0	0	0	0	0	2.38
1-144-20b	160-70	1	0	0	0	0	4	2	0	2.37	8.72	20.55	18.1	1.06
1-145-20b	160-70	1	1	0	2	5	4	2	0	4.73	16.99	14.28	26.81	2.66
1-146-20b	160-70	1	0	0	0	3	2	2	0	3.82	16.12	23.75	36.5	3.08
1-147-20b	160-70	1	0	0	0	3	0	2	0	4.12	14.89	19.57	15.2	1.40
1-148-20b	160-70	3	0	0	0	6	0	0	0	0	0	0	0	3.16
1-149-20b	160-70	1	0	0	0	2	2	2	0	2.26	7.75	18.97	17.87	1.36
1-150-20b	160-70	1	1	0	0	2	4	2	0	9.76	13.83	36.12	14.74	4.98
1-151-20b	160-70	1	1	3	0	4	4	3	0	7.14	26.35	34.41	43.56	11.40
1-152-20b	160-70	1	0	0	0	3	4	3	0	1.92	18.2	22.21	24.53	3.34
1-153-20b	160-70	1	0	0	0	2	2	3	0	2.83	17.31	25.02	23.94	2.44

1-154-20b	160-70	1	1	0	0	3	4	3	0	2.58	13.27	13.62	24.47	1.40
1-155-20b	160-70	2	0	0	0	3	0	0	0	0	0	0	0	1.82
1-156-20b	160-70	1	1	3	0	3	4	3	0	3.57	18.71	22.37	29.94	2.78
1-157-20b	160-70	2	0	0	0	6	0	0	0	0	0	0	0	3.86
1-158-20b	160-70	1	1	0	0	3	4	3	0	4.6	18.79	24.13	24.62	3.06
1-159-20b	160-70	1	0	0	0	2	2	2	0	3.17	6.82	20.61	14.03	1.58
1-160-20b	160-70	1	1	0	0	4	4	2	0	1.99	15.39	15.81	22.73	1.10
1-161-20b	160-70	1	1	0	0	3	4	3	0	4.54	13.7	25.92	22.85	2.98
1-162-20b	160-70	1	0	0	0	0	2	2	0	1.74	4.1	26.49	12.87	1.90
1-163-20b	160-70	1	0	0	2	3	2	3	0	3.9	13.04	17.78	13.94	1.18
1-164-20b	160-70	3	0	0	0	6	0	0	0	0	0	0	0	2.92
1-165-20b	160-70	1	0	0	1	3	2	2	0	3.03	20.09	12.41	34.23	2.04
1-166-20b	160-70	1	1	0	0	4	3	2	0	2.52	10.49	14.26	17.91	1.48
1-167-20b	160-70	2	0	0	0	6	0	0	0	0	0	0	0	1.66
1-168-20b	160-70	1	1	0	0	4	4	2	0	3.2	17.05	21.33	18.81	2.26
1-169-20b	160-70	1	1	0	0	4	4	2	0	1.34	4.66	13.39	15.81	0.54
1-170-20b	160-70	1	1	0	0	6	4	2	0	2.01	22.96	16.56	28.22	1.40
1-171-20b	160-70	1	0	0	0	0	4	2	0	2.12	5.78	12.08	15.5	0.82
1-172-20b	160-70	1	1	0	0	3	4	3	0	6.12	25.73	29.57	29.71	5.60
1-173-20b	160-70	2	0	0	0	6	0	0	0	0	0	0	0	4.96
1-174-20b	160-70	1	0	0	2	2	4	3	0	2.42	18.69	17.83	24.42	1.56
1-175-20b	160-70	1	0	0	0	6	4	2	0	3.26	20.61	15.9	26.48	1.94
1-176-20b	160-70	1	0	0	0	3	4	3	0	3.02	17.08	14.49	23.33	2.06
1-177-20b	160-70	1	0	0	0	2	2	2	0	2.67	7.18	14.5	15.99	0.88
1-178-20b	160-70	1	1	3	0	4	4	3	0	6.73	25.14	21.8	29.77	3.38
1-179-20b	160-70	3	0	0	1	0	0	0	0	0	0	0	0	1.12
1-180-20b	160-70	1	1	0	0	3	4	6	0	0	0	17.51	27.24	2.00
1-181-20b	160-70	1	0	0	0	2	2	1	0	1.22	3.63	11.44	16.93	0.46
1-182-20b	160-70	1	0	0	0	4	4	2	0	1.26	5.73	18.99	13.22	1.20
1-183-20b	160-70	2	0	0	0	3	0	7	0	0	0	17.86	13.42	0.84
1-184-20b	160-70	3	0	0	0	6	0	7	0	0	0	0	0	4.78
1-185-20b	160-70	1	0	0	0	4	2	3	0	4.81	14.12	27.65	30.53	5.20
1-186-20b	160-70	1	0	3	0	4	4	3	0	6.04	25.82	24.05	31.15	5.12

1-187-20b	160-70	1	0	0	0	0	2	2	0	1.75	8.88	15.4	28.56	1.58
1-188-20b	160-70	1	0	0	0	2	2	2	0	9.25	18.06	24.26	21.01	4.48
1-189-20b	160-70	1	0	0	0	6	4	3	0	3.11	12.39	18.43	14.07	0.92
1-190-20b	160-70	1	0	0	0	3	2	3	0	5.65	20.16	30.57	23.11	5.10
1-191-20b	160-70	1	1	3	9	4	4	3	0	4.59	30.47	19.13	43.28	4.68
1-192-20b	160-70	1	0	0	0	2	4	2	0	4.13	14.81	20.48	16.01	1.90
1-193-20b	160-70	1	1	0	0	4	4	3	0	2.77	19.85	19.95	34.45	3.34
1-194-20b	160-70	1	0	0	0	6	2	3	0	5.17	26.86	14.2	27.2	1.76
1-195-20b	160-70	1	0	0	0	3	2	3	0	3.89	18.28	21.6	27.34	2.80
1-196-20b	160-70	1	1	0	0	6	4	2	0	3.96	19.29	21.56	28.8	2.22
1-197-20b	160-70	1	1	0	0	2	4	2	0	4.5	13.14	24.67	19.21	1.56
1-198-20b	160-70	1	1	3	2	5	4	3	0	10.2	34.9	52.56	63.05	39.48
1-199-20b	160-70	2	0	0	0	4	0	0	0	0	0	0	0	4.10
1-200-20b	160-70	2	0	0	2	0	0	0	0	0	0	0	0	1.40
1-201-20b	160-70	1	1	0	0	5	4	2	0	3.46	9.61	25.73	32.22	3.52
1-202-20b	160-70	1	1	3	2	4	2	3	0	3.46	19.13	31.25	25.36	4.10
1-203-20b	160-70	1	1	0	0	5	4	3	0	2.18	9.51	26.41	18.86	2.14
1-204-20b	160-70	1	0	0	0	5	4	3	0	3.35	14.48	21.01	23.92	2.24
1-205-20b	160-70	1	1	0	0	4	4	6	0	0	0	31.05	23.17	4.20
1-206-20b	160-70	1	1	0	0	3	4	2	0	2.28	9.57	13.55	23.65	1.78
1-207-20b	160-70	2	0	3	2	6	4	2	0	0	0	22.82	29.48	2.94
1-208-20b	160-70	2	0	0	0	6	0	0	0	0	0	0	0	10.76
1-209-20b	160-70	1	1	0	0	4	4	2	0	2.86	8.37	28.26	30.17	5.60
1-210-20b	160-70	1	0	0	0	2	4	2	0	2.36	8.79	22.11	17.97	1.92
1-211-20b	160-70	1	0	0	0	4	2	3	0	5.37	12.46	19.14	27.88	2.78
1-212-20b	160-70	1	1	0	0	3	4	2	0	2.25	10.85	16.82	15.1	0.98
1-213-20b	160-70	1	0	0	0	0	2	2	0	1.79	8.67	14.11	22.21	1.00
1-214-20b	160-70	1	1	0	2	3	4	2	0	7.93	45.58	25.52	47.43	11.42
1-215-20b	160-70	1	1	3	2	4	4	3	0	6.1	32.11	38.89	30.14	9.28
1-216-20b	160-70	1	0	0	0	3	4	3	0	5.3	24.54	22.28	25.29	4.94
1-217-20b	160-70	2	0	0	1	1	4	7	0	0	0	21.97	15.04	0.92
1-218-20b	160-70	1	1	3	0	5	4	2	0	12.35	43.81	34.73	46.92	22.70
1-219-20b	160-70	1	0	0	0	6	2	3	0	3.7	20.73	19.46	27.78	2.96

1-220-20b	160-70	1	1	3	0	4	4	3	0	8.01	33.89	27.55	47.67	9.94
1-221-20b	160-70	1	1	0	0	5	4	0	0	0	16.19	14.57	21.08	1.58
1-222-20b	160-70	1	1	3	0	5	4	3	0	4.58	18.69	47.23	42.08	13.16
1-223-20b	160-70	1	0	3	1	6	2	2	0	5.44	26.8	33.67	28.04	9.62
1-224-20b	160-70	1	0	0	0	4	2	2	0	4.19	9.46	24.89	32.38	5.28
1-225-20b	160-70	1	0	0	0	6	2	2	0	2.67	4.46	24.52	32.28	4.04
1-226-20b	160-70	1	1	3	0	4	2	2	0	2.92	14.93	49.64	19.83	5.56
1-227-20b	160-70	1	1	0	0	2	4	3	0	4.77	20.87	25.57	30.93	5.30
1-228-20b	160-70	1	1	0	0	4	4	3	0	1.94	23.97	27.03	30.15	4.62
1-229-20b	160-70	1	1	3	2	3	4	3	0	6.4	26.77	45.73	47.33	18.78
1-230-20b	160-70	1	0	3	2	0	4	2	0	6.63	35.76	38.86	39.95	8.14
1-231-20b	160-70	1	1	3	2	4	4	2	0	11.15	28.54	35.5	29.6	12.00
1-232-20b	160-70	1	1	0	0	6	2	2	0	8.55	13.72	31.9	25.18	5.14
1-001-23b	170-80	2	0	0	0	2	0	7	0	0	0	0	0	0.26
1-002-23b	170-80	1	1	0	2	6	4	2	0	2.25	5.41	11.73	10.03	0.26
1-003-23b	170-80	2	0	0	2	6	0	7	0	0	0	0	0	0.18
1-004-23b	170-80	1	0	0	0	6	4	3	0	1.65	6.05	11.92	9.04	0.18
1-005-23b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	0.38
1-006-23b	170-80	1	0	0	0	6	2	2	0	1.54	11.09	7.25	13.22	0.24
1-007-23b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.30
1-008-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.64
1-009-23b	170-80	1	1	0	2	0	4	2	0	3.39	10.94	10.75	11.21	0.38
1-010-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.80
1-011-23b	170-80	1	1	0	2	4	4	2	0	2.91	8.66	16.24	10.59	0.56
1-012-23b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	0.46
1-013-23b	170-80	1	1	0	0	6	4	3	0	2.66	8.78	14.85	11.67	0.44
1-014-23b	170-80	2	0	0	0	6	0	0	0	0	0	12.98	13.3	0.66
1-015-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.84
1-016-23b	170-80	1	0	0	2	6	4	1	0	2.8	10.31	13.1	13.4	0.38
1-017-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.56
1-018-23b	170-80	2	0	0	2	6	0	0	0	0	0	0	0	0.48
1-019-23b	170-80	1	0	0	0	6	2	3	0	2.36	7.67	11.5	16.87	0.60
1-020-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.94

1-021-23b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	0.48
1-022-23b	170-80	1	0	0	0	6	2	2	0	1.59	9.82	11.28	16.5	0.56
1-023-23b	170-80	1	0	0	0	3	2	2	0	2.75	10.38	14.18	15.86	0.96
1-024-23b	170-80	1	0	0	0	6	2	3	0	4.15	16.92	8.64	17.02	0.58
1-025-23b	170-80	1	0	0	0	6	2	2	0	1.32	4.29	8.83	16.91	0.70
1-026-23b	170-80	2	0	0	0	3	0	7	0	0	0	0	0	0.90
1-027-23b	170-80	1	1	0	0	6	4	2	0	4.43	16.26	12.18	16.51	0.90
1-028-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.42
1-029-23b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.72
1-030-23b	170-80	1	0	0	0	2	2	2	0	1.38	3.57	10.89	18.58	0.84
1-031-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.68
1-032-23b	170-80	1	0	0	0	2	2	2	0	1.76	8.31	18.38	13.56	0.66
1-033-23b	170-80	1	1	0	0	5	2	2	0	1.98	13.61	14.85	15.4	1.00
1-034-23b	170-80	1	0	0	0	6	4	3	0	5.39	12.63	21.54	12.2	1.90
1-035-23b	170-80	1	1	0	0	4	4	2	0	3.77	11.67	18.66	16.05	1.24
1-036-23b	170-80	1	1	0	0	2	4	3	0	4.44	17.18	12.6	17.32	0.80
1-037-23b	170-80	2	0	0	2	6	0	7	0	0	0	0	0	1.40
1-038-23b	170-80	1	0	0	0	6	2	6	0	0	0	16.25	16.31	1.04
1-039-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.92
1-040-23b	170-80	1	1	0	0	4	4	3	0	2.36	15.53	14.37	16.35	0.86
1-041-23b	170-80	1	1	0	0	5	4	2	0	3.18	8.88	19.35	15.46	2.28
1-042-23b	170-80	1	0	0	0	0	2	2	0	3.42	13.54	13.38	18.14	0.90
1-043-23b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	0.48
1-044-23b	170-80	1	0	0	0	6	2	3	0	3.33	17.5	14.76	22.12	1.08
1-045-23b	170-80	1	0	0	0	6	2	2	0	5.26	14.38	16.39	20.5	1.72
1-046-23b	170-80	2	0	0	0	0	2	2	0	3.6	14.18	14.28	18.38	0.80
1-047-23b	170-80	2	0	0	0	2	2	3	0	3.02	10.26	15.92	17.34	1.18
1-048-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.26
1-049-23b	170-80	1	0	0	0	4	2	3	0	1.66	16.31	17.17	15.78	0.52
1-050-23b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	1.48
1-051-23b	170-80	1	1	0	0	3	2	2	0	2.6	15.23	19.52	19.67	1.66
1-052-23b	170-80	2	0	0	0	3	0	0	0	0	0	0	0	1.54
1-053-23b	170-80	1	1	0	0	3	4	2	0	3.71	8.95	15.68	19.21	0.84

1-054-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	3.50
1-055-23b	170-80	1	1	0	0	4	4	2	0	2.83	13.7	15.53	30.42	1.84
1-056-23b	170-80	2	0	0	0	0	0	7	0	0	0	0	0	0.92
1-057-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.72
1-058-23b	170-80	2	0	0	0	0	0	7	0	0	0	0	0	1.04
1-59-23b	170-80	2	0	0	0	2	0	7	0	0	0	0	0	1.42
1-060-23b	170-80	2	0	0	0	3	0	7	0	0	0	0	0	1.18
1-061-23b	170-80	1	0	0	0	2	2	3	0	3.69	11.59	22.71	16.43	1.54
1-062-23b	170-80	2	0	0	0	2	4	0	0	0	0	0	0	1.88
1-063-23b	170-80	1	0	0	0	4	2	2	0	2.79	10.96	25.36	23.21	2.68
1-064-23b	170-80	1	1	0	0	2	4	3	0	2.64	14.59	19.67	18.21	1.42
1-065-23b	170-80	2	0	0	1	6	0	0	0	0	0	0	0	1.08
1-066-23b	170-80	1	0	0	1	6	4	1	0	6.62	27.9	19.61	28.12	3.00
1-067-23b	170-80	2	0	0	0	5	0	0	0	0	0	0	0	3.62
1-068-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.96
1-069-23b	170-80	1	1	0	0	5	4	0	1	1.23	7.27	19.76	28.08	2.36
1-070-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	3.62
1-071-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	3.08
1-072-23b	170-80	1	0	0	0	5	2	3	0	3.22	21.64	24.66	23.56	2.58
1-073-23b	170-80	1	1	0	0	2	4	3	0	4.15	13.48	13.05	16.86	0.82
1-074-23b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	3.18
1-075-23b	170-80	2	0	0	0	5	0	7	0	0	0	0	0	2.46
1-076-23b	170-80	1	1	0	0	4	4	2	0	2.67	8.38	48.02	23.17	5.74
1-077-23b	170-80	1	1	0	0	3	4	3	0	2.31	9.69	21.67	14.31	1.10
1-078-23b	170-80	1	1	0	0	2	2	3	0	4.93	14.11	24.6	16.57	2.12
1-079-23b	170-80	1	0	0	0	3	2	2	0	3.74	12.04	17.89	25.75	2.22
1-080-23b	170-80	1	0	0	0	2	2	2	0	5.7	16.32	22.27	21.94	3.64
1-081-23b	170-80	1	1	0	0	6	4	2	0	5.21	14.29	15.69	22	1.98
1-082-23b	170-80	1	0	0	0	4	2	2	0	3.83	15.28	21.58	23.63	2.68
1-083-23b	170-80	2	0	0	0	4	0	7	0	0	0	0	0	2.06
1-084-23b	170-80	1	1	3	0	3	4	2	0	5.52	11.2	19.23	30.01	3.36
1-085-23b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	2.60
1-086-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	2.24

1-087-23b	170-80	1	0	0	0	3	2	3	0	3.03	18.39	17.78	26.98	2.20
1-088-23b	170-80	1	0	0	0	3	2	3	0	2.5	17.01	23.76	28.08	3.72
1-089-23b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	3.00
1-090-23b	170-80	2	0	0	0	5	4	0	0	0	0	0	0	4.68
1-091-23b	170-80	1	0	0	0	2	4	2	0	2.92	7.95	21.27	18.55	1.98
1-092-23b	170-80	2	0	0	2	6	0	0	0	0	0	0	0	3.10
1-093-32b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.98
1-094-23b	170-80	1	0	0	0	3	4	2	0	2.6	8.58	26.04	17.16	2.42
1-095-23b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.08
1-096-23b	170-80	1	1	3	2	2	4	4	0	5.89	16.96	21.1	36.17	3.64
1-097-23b	170-80	1	0	0	0	6	2	2	0	3.16	16.98	16.85	16.71	1.62
1-098-23b	170-80	1	1	0	0	4	4	2	0	2.03	5.62	26.7	25.81	2.56
1-099-23b	170-80	1	0	0	0	2	2	3	0	2.24	15.65	17.9	23.22	2.32
1-100-23b	170-80	1	1	0	0	3	4	2	0	5.54	23.71	15.9	30.24	3.24
1-101-23b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.02
1-102-23b	170-80	1	0	0	0	4	4	2	0	3.06	8.77	33.15	23.03	3.38
1-103-23b	170-80	3	0	0	0	6	0	7	0	0	0	0	0	0.82
1-104-23b	170-80	1	1	0	0	3	2	3	0	3.16	9.43	18.2	15.29	1.32
1-105-23b	170-80	3	0	0	0	6	0	7	0	0	0	0	0	1.54
1-106-23b	170-80	1	1	0	0	2	2	2	0	3.82	10.41	20.34	12.04	1.06
1-107-23b	170-80	1	1	0	0	2	4	2	0	1.95	7.83	28.16	14.9	1.86
1-108-23b	170-80	1	0	0	0	0	4	3	0	3.66	24.41	19.9	31.75	2.62
1-109-23b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.46
1-110-23b	170-80	1	1	0	0	0	4	2	0	5.04	20.01	16.35	20.25	1.58
1-111-23b	170-80	1	0	0	0	3	2	2	0	3.33	16.85	15.7	21.81	2.04
1-112-23b	170-80	1	1	0	0	2	4	3	0	2.21	17.84	20.73	22.18	2.22
1-113-23b	170-80	1	0	0	0	0	4	2	0	4.52	13.09	19.97	25.18	1.94
1-114-23b	170-80	1	1	3	2	3	4	2	0	6.72	21.24	26.56	26.65	4.40
1-115-23b	170-80	3	0	0	0	0	0	7	0	0	0	0	0	1.64
1-116-23b	170-80	1	0	3	0	4	2	3	0	5.14	13.27	34.37	18.98	3.94
1-117-23b	170-80	1	1	0	0	5	4	2	0	1.98	8.16	21.24	23.1	2.18
1-118-23b	170-80	1	0	3	1	4	2	2	0	4.61	10.43	30.45	23.16	3.78
1-119-23b	170-80	1	0	0	0	3	2	3	0	1.46	15.93	21.06	15.66	1.60

1-120-23b	170-80	1	0	0	0	4	2	2	0	4.17	15.17	21.51	25.86	3.88
1-121-23b	170-80	1	0	0	0	3	2	3	0	4.47	17.31	19.69	25.61	3.20
1-122-23b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	2.98
1-123-23b	170-80	2	0	0	0	3	0	7	0	0	0	0	0	4.46
1-124-23b	170-80	1	1	3	1	0	4	2	0	4.14	18.23	16.81	37.81	3.38
1-125-23b	170-80	1	1	0	0	5	4	3	0	4.48	30.95	24.88	37.14	6.12
1-126-23b	170-80	1	1	0	0	6	4	3	0	3.56	19.98	21.41	25.44	2.48
1-127-23b	170-80	2	0	0	0	6	0	7	0	0	0	0	0	2.44
1-128-23b	170-80	1	1	0	0	6	4	3	0	9.2	12.85	33.38	11.65	5.76
1-129-23b	170-80	1	1	3	2	5	4	3	0	8.42	34.1	24.16	37.23	6.04
1-130-23b	170-80	1	0	0	0	6	4	2	0	10.27	23.8	25.22	26.56	7.50
1-131-23b	170-80	1	0	0	0	6	2	3	0	7.19	21.18	27.83	18.5	4.16
1-132-23b	170-80	1	0	0	0	6	2	3	0	2.51	17.54	28.92	26.04	3.66
1-133-23b	170-80	1	0	0	0	2	2	2	0	2.74	14.5	25.62	26.18	2.90
1-134-23b	170-80	1	0	0	0	2	2	3	0	3.78	23.74	25.77	28.73	4.30
1-135-23b	170-80	1	1	3	0	4	4	2	0	4.44	11.04	32.8	29.16	7.06
1-136-23b	170-80	1	0	0	0	3	4	2	0	5.91	19.75	19.3	24.93	3.00
1-137-23b	170-80	1	1	3	0	5	4	3	0	1.63	29.26	23.92	38.3	5.08
1-138-23b	170-80	1	0	3	0	2	2	3	0	6.05	45.7	19.68	49.5	7.52
1-139-23b	170-80	1	1	3	1	6	2	3	0	3.11	21.18	33.07	29.22	5.94
1-140-23b	170-80	1	1	0	0	4	2	2	0	3.26	11.47	36.74	21.74	6.10
1-141-23b	170-80	1	1	3	2	3	4	2	0	2.49	10.32	32.21	24.22	4.26
1-142-23b	170-80	1	0	3	0	5	2	2	0	8.1	22.41	35.07	22.75	6.62
1-143-23b	170-80	3	0	0	1	2	0	0	0	0	0	0	0	7.16
1-144-23b	170-80	1	0	0	0	6	4	3	0	7.27	34.45	24.26	25.42	6.36
1-145-23b	170-80	1	0	0	0	6	4	3	0	5.66	18.23	36.62	22.33	6.12
1-146-23b	170-80	1	0	3	0	5	2	3	0	3.13	17.58	29.84	31.58	6.58
1-147-23b	170-80	1	0	0	0	0	2	2	0	1.75	8.25	24.63	25.11	2.70
1-148-23b	170-80	1	0	3	2	6	3	1	0	6.67	20.96	34.49	31.56	11.52
1-149-23b	170-80	1	1	3	0	5	4	2	0	7.46	20.8	25.05	32.79	5.38
1-150-23b	170-80	1	1	3	2	2	2	2	0	8.89	24.02	30.18	39.82	12.88
1-151-23b	170-80	1	1	3	0	5	4	2	0	3.88	24.51	39.45	36.7	7.74
1-152-23b	170-80	3	0	0	2	6	0	0	0	0	0	0	0	7.52

1-153-23b	170-80	1	1	1	0	5	4	2	0	2.2	9.89	37.94	44.75	8.80
1-154-23b	170-80	1	0	3	0	5	2	2	0	3.97	15.88	50.07	32.41	19.74
1-155-23b	170-80	1	1	3	0	5	4	3	0	6.25	22.88	45.84	46.6	14.38
1-156-23b	170-80	1	0	0	2	5	2	3	0	2.49	10.06	23.69	32.58	6.58
1-157-23b	170-80	3	0	0	2	6	0	0	0	0	0	0	0	8.10
1-158-23b	170-80	1	1	3	0	5	4	2	0	4.85	14.44	48.16	31.37	9.48
1-159-23b	170-80	1	1	3	0	5	4	3	0	4.63	19.78	29.87	43.62	15.16
1-160-23b	170-80	1	1	0	0	4	4	2	0	3.6	8.2	42.04	31.29	8.80
1-161-23b	170-80	1	1	0	2	3	4	2	0	4.37	21.36	39.5	28.05	11.62
1-162-23b	170-80	1	1	3	1	6	4	2	0	4.99	17.26	37.55	39.58	9.60
1-163-23b	170-80	1	1	0	2	6	4	3	0	6.61	20.45	23.18	32.65	6.60
1-164-23b	170-80	1	1	3	0	2	3	2	0	6.25	19.99	33.02	32.37	9.56
1-165-23b	170-80	1	0	0	0	4	4	2	0	5.03	12.52	33.25	24.58	5.04
1-166-23b	170-80	1	1	1	0	4	4	3	0	10.41	72.72	27.13	83.28	27.06
1-167-23b	170-80	1	0	0	0	4	2	2	0	2.66	10.28	28.09	33.06	7.00
1-168-23b	170-80	1	1	5	0	5	4	2	0	3.07	20.18	54.93	33.22	21.78
1-169-23b	170-80	1	1	2	1	3	4	2	0	5.59	22.68	31.75	60.03	21.50
1-170-23b	170-80	1	1	3	2	3	4	2	0	2.16	12.35	46.01	40.7	11.84
1-171-23b	170-80	1	0	3	2	5	4	3	0	3.9	14.75	40.45	43.92	14.34
1-172-23b	170-80	1	0	3	0	3	2	3	0	5.72	27.74	43.08	39.61	14.52
1-173-23b	170-80	1	1	1	2	5	4	2	0	7.99	28.68	33.9	68.79	23.69
1-174-23b	170-80	1	0	3	1	3	2	2	0	4.22	18.03	66.21	45.08	39.04
1-175-23b	170-80	1	0	3	2	4	4	3	0	3.39	28.46	47.23	52.58	22.64
1-176-23b	170-80	1	1	3	2	4	4	2	0	6.2	26.37	36.32	54.1	14.18
1-177-23b	170-80	2	0	0	1	3	3	0	0	0	0	0	0	21.28
1-178-23b	170-80	1	0	3	2	5	3	3	0	6.03	47.5	63.9	95.49	79.32
1-001-24b	170-80	1	0	0	0	6	4	3	0	6.64	24.08	26.08	32.84	4.58
1-002-24b	170-80	2	0	0	0	0	0	0	0	0	0	21.36	37.48	4.82
1-003-24b	170-80	1	0	0	0	4	2	2	0	3.71	10.6	44.73	40.94	8.64
1-004-24b	170-80	1	0	3	0	5	4	2	0	5.07	30.36	48	60.07	20.22
1-005-24b	170-80	1	0	3	0	5	2	2	0	9.55	26.8	36.95	41.27	17.20
1-006-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	7.24
1-007-24b	170-80	1	1	3	0	4	4	2	0	3.58	17.89	72.7	54.06	32.02

1-008-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	28.12
1-009-24b	170-80	2	0	3	0	4	4	7	0	0	0	59.48	26.1	12.34
1-010-24b	170-80	1	1	3	1	2	4	3	0	4.3	23.93	35.54	60.05	14.02
1-011-24b	170-80	1	0	0	0	3	4	3	0	4.36	23.4	25.26	31.45	4.69
1-012-24b	170-80	2	0	0	2	1	2	7	0	0	0	21.86	19.09	2.40
1-013-24b	170-80	1	0	3	2	3	2	2	0	9.68	30.66	49.48	74.64	39.76
1-014-24b	170-80	1	1	3	0	5	4	2	0	5.98	38.35	48.93	74.17	42.42
1-015-24b	170-80	1	1	0	0	3	4	2	0	3.66	26.53	38.99	30.68	5.84
1-016-24b	170-80	1	0	3	1	1	2	2	0	4.75	26.23	46.84	68.73	27.44
1-017-24b	170-80	1	1	3	0	5	4	2	0	3.47	10	44.52	28.12	5.62
1-018-24b	170-80	1	1	3	2	4	4	2	0	4.46	6.21	55.77	35.18	11.04
1-019-24b	170-80	1	1	3	2	4	4	1	0	8.37	66.38	37.28	65.64	19.24
1-020-24b	170-80	1	0	0	0	2	2	3	0	7.08	34.77	43.65	41.27	14.36
1-021-24b	170-80	1	0	0	0	4	2	2	0	5.28	15.47	37.53	47.72	12.36
1-022-24b	170-80	1	0	0	0	3	2	2	0	2.58	17.58	27.95	19.64	10.04
1-023-24b	170-80	3	0	0	0	6	0	7	0	0	0	0	0	1.76
1-024-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	34.78
1-025-24b	170-80	1	0	0	0	3	2	2	0	3.46	11.29	16.09	26.93	2.16
1-026-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.86
1-027-24b	170-80	1	0	0	0	0	4	2	0	2.66	8.9	33.58	17.64	2.18
1-028-24b	170-80	1	1	0	0	4	4	2	0	5.77	26.17	24.26	46.06	8.26
1-029-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.34
1-030-24b	170-80	1	1	3	0	4	4	3	0	3.68	15.77	52.73	20.05	10.02
1-031-24b	170-80	1	0	0	0	2	2	2	0	4.37	21.09	28.79	23.23	4.56
1-032-24b	170-80	1	1	3	0	3	4	2	0	4.35	12.07	43.11	58.39	25.10
1-033-24b	170-80	1	1	0	2	2	4	1	0	3.09	32.86	27.21	31.79	4.52
1-034-24b	170-80	1	1	3	0	5	4	3	0	8.33	38.02	40.77	57.31	16.12
1-035-24b	170-80	1	1	3	0	4	4	3	0	5.88	39.15	44.5	43.08	15.52
1-036-24b	170-80	1	1	3	0	2	4	2	0	3.67	11.04	49.95	31.21	5.88
1-037-24b	170-80	1	1	3	2	2	4	2	0	4.63	14.4	66.01	46.36	27.96
1-038-24b	170-80	1	1	3	0	5	4	2	0	13.96	32.6	58.26	52.38	29.98
1-039-24b	170-80	1	0	0	0	3	2	2	0	4.64	21.17	23.15	21.62	2.82
1-040-24b	170-80	3	0	3	1	0	0	7	0	0	0	0	0	3.76

1-041-24b	170-80	1	1	3	0	3	4	2	0	1.57	10.01	48.19	51.78	15.88
1-042-24b	170-80	1	1	3	0	0	4	3	0	5.58	24.69	39.19	54.33	11.60
1-043-24b	170-80	1	0	0	0	2	2	2	0	2.12	13.89	31.26	28.28	4.46
1-044-24b	170-80	1	0	3	0	2	2	3	0	8.31	23.59	48.2	29.1	8.40
1-045-24b	170-80	1	1	0	2	4	4	2	0	3.29	15.51	27.81	36.09	7.12
1-046-24b	170-80	1	1	0	0	4	4	3	0	2.15	11.14	27.25	17.3	1.30
1-047-24b	170-80	1	1	3	0	5	4	2	0	7.08	42.25	45.14	67.82	19.72
1-048-24b	170-80	1	1	0	2	2	2	3	0	7.65	19.61	22.11	19.19	3.96
1-049-24b	170-80	1	1	0	0	4	4	3	0	3.68	23.23	28.91	28.6	4.20
1-050-24b	170-80	1	1	0	0	5	2	2	0	1.49	11.28	31.67	25.27	5.12
1-051-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.20
1-052-24b	170-80	1	1	0	0	4	4	3	0	7.23	27.1	19.78	32.64	4.04
1-053-24b	170-80	1	0	0	0	3	4	2	0	1.41	8.59	24.1	25.6	2.88
1-054-24b	170-80	1	1	0	0	4	4	3	0	5.97	25.45	20.56	28.75	3.64
1-055-24b	170-80	1	0	0	0	3	2	3	0	2.62	18.13	18.46	22.86	1.86
1-056-24b	170-80	1	1	0	0	3	4	3	0	5.12	15.22	16.77	24.35	1.48
1-057-24b	170-80	1	1	3	0	4	4	3	0	4.47	22.37	27.56	32.08	6.16
1-058-24b	170-80	1	1	0	0	0	4	3	0	5.84	24.32	18.55	31.87	2.76
1-059-24b	170-80	1	1	0	0	3	4	2	0	2.8	16.13	26.81	26.95	3.20
1-060-24b	170-80	1	1	0	0	2	4	2	0	3.89	13.11	23.6	35.81	4.58
1-061-24b	170-80	1	1	0	0	4	4	2	0	1.47	18.75	20.35	24.18	1.92
1-062-24b	170-80	1	0	0	0	5	4	6	0	4.9	31.89	43.17	52.29	22.34
1-063-24b	170-80	1	1	0	0	3	4	2	0	2.3	2.3	29.16	31.86	4.22
1-064-24b	170-80	1	0	0	0	0	4	2	0	2.98	22.77	17.53	26.87	1.72
1-065-24b	170-80	1	1	3	0	5	4	2	0	3.8	11.58	44.79	49.03	15.52
1-066-24b	170-80	1	1	3	0	0	4	3	0	7.5	14.69	26.24	48.94	12.26
1-067-24b	170-80	3	0	0	0	2	0	7	0	0	0	0	0	1.00
1-068-24b	170-80	3	0	0	0	0	0	7	0	0	0	0	0	2.86
1-069-24b	170-80	1	0	0	0	5	4	2	0	4.66	9.23	31.58	25.97	5.08
1-070-24b	170-80	1	1	3	0	5	4	3	0	4.1	14.02	41.33	42.55	15.30
1-071-24b	170-80	1	1	3	0	5	4	3	0	3.08	18.4	36.17	24.18	5.40
1-072-24b	170-80	1	0	3	0	3	2	2	0	9.08	33.21	29.93	44.62	14.10
1-073-24b	170-80	1	0	3	0	4	4	2	0	3.72	12.4	35.64	35.6	15.28

1-074-24b	170-80	1	0	3	0	4	2	2	0	4.15	12.88	25.59	50	10.72
1-075-24b	170-80	1	1	1	2	3	4	1	0	5.09	36.51	42.95	65.75	15.08
1-076-24b	170-80	1	1	3	0	5	4	2	0	5.23	40.09	46.13	40.08	10.94
1-077-24b	170-80	1	1	0	0	5	4	6	0	0	0	29.35	33.66	6.22
1-078-24b	170-80	1	1	0	0	5	4	3	0	5.11	17.06	21.25	38.65	5.02
1-079-24b	170-80	1	1	3	0	3	4	2	0	7.7	22.04	38.48	49.29	11.30
1-080-24b	170-80	1	1	3	0	5	4	3	0	4.42	13.61	45.37	26.84	7.36
1-081-24b	170-80	1	0	0	2	6	2	2	0	3.98	13.04	28.41	26.15	3.96
1-082-24b	170-80	1	1	3	0	3	4	2	0	6.25	22.22	40.03	59.69	22.24
1-083-24b	170-80	1	1	0	0	4	4	2	0	6.78	38.76	21.73	41.32	4.80
1-084-24b	170-80	1	1	3	0	6	4	2	0	6.43	59.82	29.58	60.66	12.22
1-085-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.34
1-086-24b	170-80	1	1	0	0	6	4	2	0	4.44	38.43	20.59	42.76	4.24
1-087-24b	170-80	1	1	0	0	4	4	2	0	5.24	18.69	32.88	30.69	5.36
1-088-24b	170-80	1	0	3	0	3	4	3	0	6.83	22.04	38.33	31.28	7.22
1-089-24b	170-80	1	0	0	0	6	2	2	0	3.41	10.88	17.65	33.15	3.90
1-090-24b	170-80	1	1	3	2	4	4	2	0	6.88	21.73	81.18	50.05	44.60
1-091-24b	170-80	1	1	1	1	6	4	1	0	16.25	56.54	48.71	95.35	87.36
1-092-24b	170-80	1	1	0	0	5	4	3	0	7.62	43	33.01	53.03	16.40
1-093-24b	170-80	1	1	0	0	0	4	2	0	3.78	15.74	30.06	30.96	4.20
1-094-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	2.04
1-095-24b	170-80	1	1	0	0	2	4	3	0	7.38	17.02	43.2	27.06	10.30
1-096-24b	170-80	1	0	0	0	3	3	2	0	4.28	31.08	22.83	41.47	6.26
1-097-24b	170-80	1	0	0	0	3	2	2	0	5.4	13.67	29.15	22.58	4.04
1-098-24b	170-80	1	0	0	2	6	2	2	0	11.09	28.18	15.67	47.03	7.60
1-099-24b	170-80	1	1	3	2	3	4	2	0	7.12	18.61	38.41	40.89	17.92
1-100-24b	170-80	1	1	3	2	4	4	3	0	7.59	17.43	31.52	31.03	7.72
1-101-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	5.00
1-102-24b	170-80	1	1	0	0	2	3	2	0	4.5	17.86	23.27	24.07	3.16
1-103-24b	170-80	1	1	0	0	5	4	2	0	4.15	15.14	29.5	32.27	5.96
1-104-24b	170-80	1	0	0	0	4	2	2	0	4.3	14.73	19.37	22.79	2.36
1-105-24b	170-80	1	0	0	0	0	2	2	0	1.38	7.09	28.86	25.96	1.76
1-106-24b	170-80	1	1	0	0	5	3	3	0	7.7	42.23	26.21	43.54	8.32

1-107-24b	170-80	1	1	3	0	3	4	2	0	1.52	6.93	44.63	28.04	11.62
1-108-24b	170-80	1	0	0	2	3	2	2	0	5.36	26.54	32.81	28.94	7.12
1-109-24b	170-80	1	1	3	0	4	3	2	0	15.67	39.35	40.78	58.69	30.78
1-110-24b	170-80	1	1	0	0	4	4	2	0	2.32	15.58	34.89	38.09	6.08
1-111-24b	170-80	1	1	3	0	4	4	2	0	11.2	36.46	44.9	45.42	21.46
1-112-24b	170-80	1	0	3	0	0	2	3	0	7.67	29.15	53.54	24.78	9.40
1-113-24b	170-80	1	0	3	0	4	4	2	0	3.12	18.97	37.27	39.36	8.84
1-114-24b	170-80	1	1	3	0	3	4	3	0	4.27	31.86	37.53	34.65	7.16
1-115-24b	170-80	1	1	3	0	4	4	2	0	31.18	28.66	31.43	37.74	11.14
1-116-24b	170-80	1	1	0	0	3	4	2	0	7.93	19.28	27.64	27.13	5.74
1-117-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.28
1-118-24b	170-80	1	1	0	0	6	4	2	0	6.1	29.04	23.36	46.72	5.16
1-119-24b	170-80	1	1	0	0	5	4	2	0	7.5	20.38	28.75	33.39	5.48
1-120-24b	170-80	1	0	0	0	6	2	6	0	0	0	18.51	26.73	1.94
1-121-24b	170-80	1	1	3	0	5	4	3	0	4.06	29.47	33.21	43.18	7.08
1-122-24b	170-80	1	1	0	0	5	4	6	0	3.6	15.11	33.93	31.13	6.26
1-123-24b	170-80	1	1	0	0	3	4	2	0	10.98	27.03	30.38	30.65	9.14
1-124-24b	170-80	1	1	0	0	4	2	3	0	4.24	14.21	19.82	26.85	2.94
1-125-24b	170-80	1	0	0	0	2	2	3	0	5.46	18.6	20.49	36.96	4.38
1-126-24b	170-80	1	1	0	2	1	4	2	0	9.15	20.14	33.82	26.29	8.96
1-127-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	14.32
1-128-24b	170-80	1	1	3	1	1	4	2	0	3.15	16.66	44.15	37.11	7.88
1-129-24b	170-80	1	0	0	2	1	2	6	0	2.18	5.87	22.55	22.85	4.00
1-130-24b	170-80	1	0	0	0	6	2	2	0	7.87	38.42	24.58	50.09	12.14
1-131-24b	170-80	1	0	0	0	0	2	2	0	7.63	27.46	23.07	31.9	6.62
1-132-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	8.28
1-133-24b	170-80	1	1	0	2	5	4	2	0	5.22	31.54	25.93	32.05	7.42
1-134-24b	170-80	1	0	0	0	3	4	2	0	4.02	14.34	36.18	35.3	8.84
1-135-24b	170-80	1	0	0	0	4	2	1	0	9.86	32.47	35.99	32.45	9.32
1-136-24b	170-80	1	0	0	2	2	4	1	0	3.14	30.8	26.19	30.74	2.56
1-137-24b	170-80	1	1	3	0	5	4	3	0	3.36	17.85	29.36	27.49	3.84
1-138-24b	170-80	1	1	0	0	3	2	2	0	4.1	15.65	18.12	32.39	3.10
1-139-24b	170-80	2	0	3	0	3	4	7	0	0	0	26.74	44.3	7.74

1-140-24b	170-80	3	0	0	0	6	0	7	0	0	0	0	0	5.58
1-141-24b	170-80	1	0	0	0	3	2	2	0	7.65	18.5	27.13	26.34	4.94
1-142-24b	170-80	1	0	0	0	6	2	2	0	3.34	12.12	20.99	33.21	3.20
1-143-24b	170-80	1	1	0	0	3	4	2	0	4.64	9.82	22.51	30.92	4.40
1-144-24b	170-80	1	1	0	2	2	4	3	0	4.57	24.1	21.58	25.07	2.54
1-145-24b	170-80	1	0	0	0	0	4	2	0	1.85	19.81	15.21	24.72	1.32
1-146-24b	170-80	1	1	3	1	0	4	2	0	2.9	9.12	31.85	37.19	4.20
1-147-24b	170-80	1	1	3	0	3	4	2	0	2.51	12.25	32	24.03	3.84
1-148-24b	170-80	2	0	0	0	3	0	0	0	0	0	0	0	3.72
1-149-24b	170-80	3	0	0	2	0	0	7	0	0	0	0	0	2.74
1-150-24b	170-80	1	0	0	0	4	2	2	0	2.97	16.25	31.61	27.12	4.76
1-151-24b	170-80	1	1	3	0	5	3	6	0	2.34	18.68	43.1	35.02	14.18
1-152-24b	170-80	1	1	0	0	5	4	2	0	2.96	20.23	23.13	33.21	2.94
1-153-24b	170-80	1	0	0	0	4	2	2	0	1.69	8.02	23.98	28.45	3.38
1-154-24b	170-80	1	0	0	0	4	4	3	0	4.92	22.31	24.23	30.23	2.68
1-155-24b	170-80	1	0	0	0	6	2	2	0	3.55	16.12	16.64	25.65	2.66
1-156-24b	170-80	1	0	0	0	5	2	2	0	1.72	5.7	28.71	16.96	2.56
1-157-24b	170-80	1	0	0	0	5	2	6	0	2.3	7.48	37.16	26.67	5.08
1-158-24b	170-80	1	0	0	0	0	2	2	0	4.94	16.96	23.22	18.81	2.40
1-159-24b	170-80	1	1	0	0	6	4	2	0	6.1	27.04	17.92	28.49	3.90
1-160-24b	170-80	1	0	0	0	0	2	6	0	1.29	7.03	16.06	24.25	1.20
1-161-24b	170-80	1	1	0	0	5	2	2	0	4.2	15.92	23.52	21.09	2.48
1-162-24b	170-80	1	1	0	0	4	4	2	0	2.5	12.1	21.96	24.1	2.42
1-163-24b	170-80	1	0	0	2	3	4	2	0	6.56	24.15	14.77	24.86	2.18
1-164-24b	170-80	1	1	0	0	3	3	3	0	3.45	15.16	17.14	21.57	1.74
1-165-24b	170-80	1	0	0	0	5	4	3	0	5.89	15.81	20.35	16.22	2.32
1-166-24b	170-80	1	0	0	0	3	4	3	0	5	21.68	20.03	27.14	2.40
1-167-24b	170-80	1	0	0	0	3	2	2	0	2.36	4.18	22.21	23.21	2.32
1-168-24b	170-80	3	0	0	1	6	0	0	0	0	0	0	0	1.66
1-169-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.52
1-170-24b	170-80	1	1	0	1	6	3	1	0	3.02	14.62	15.65	22.87	1.70
1-171-24b	170-80	1	0	0	0	4	4	6	0	2.97	8.4	19.86	28.2	1.92
1-172-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.96

1-173-24b	170-80	1	0	0	0	4	4	2	0	2.08	14.37	19.58	24.25	1.58
1-174-24b	170-80	1	0	0	1	0	4	6	0	4.4	13.85	21.21	22.22	1.82
1-175-24b	170-80	1	0	0	0	4	4	2	0	2.58	15.45	23.87	30.49	3.20
1-176-24b	170-80	1	1	0	0	5	4	2	0	1.38	7.08	19.99	22.03	1.32
1-177-24b	170-80	1	1	0	0	0	3	2	0	9.01	23.44	20.26	24.29	3.36
1-178-24b	170-80	1	0	0	0	6	2	2	0	3.06	8.7	16.62	26.82	2.20
1-179-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.98
1-180-24b	170-80	3	0	0	2	4	0	0	0	0	0	0	0	1.36
1-181-24b	170-80	1	0	0	0	3	2	2	0	2.46	15.02	23.23	20.73	1.90
1-182-24b	170-80	1	0	0	2	5	4	3	0	5.77	23.48	28.6	26.33	4.44
1-183-24b	170-80	1	0	0	2	6	4	1	0	3.73	14.35	25.55	17.59	2.16
1-184-24b	170-80	1	0	0	0	2	2	2	0	5.07	10.08	21.05	11.91	1.36
1-185-24b	170-80	1	0	0	2	2	2	1	0	4.9	16.99	19.83	16.99	1.86
1-186-24b	170-80	1	0	0	0	0	4	6	0	4.08	11.89	23.26	21.13	2.10
1-187-24b	170-80	1	1	0	0	6	4	2	0	2.7	14.66	17.22	23.21	2.22
1-188-24b	170-80	1	0	0	2	0	2	1	0	7.27	29.29	27.46	27.27	5.34
1-189-24b	170-80	1	0	0	0	6	2	2	0	1.48	10.2	13.13	27.2	1.76
1-190-24b	170-80	1	1	0	0	5	4	3	0	4.73	13.78	21.73	19.9	2.30
1-191-24b	170-80	1	1	0	0	6	4	3	0	2.34	9.93	23.02	18.58	1.32
1-192-24b	170-80	3	0	0	2	6	0	0	0	0	0	0	0	1.86
1-193-24b	170-80	1	0	0	0	3	4	2	0	3.75	10.58	17.86	28.44	2.10
1-194-24b	170-80	1	0	0	0	4	4	3	0	7.56	27.68	21.83	28.78	3.00
1-195-24b	170-80	1	0	0	0	3	4	3	0	5.65	32.75	29.15	37.14	5.46
1-196-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.86
1-197-24b	170-80	2	0	0	0	3	2	7	0	0	0	28.14	28.43	4.76
1-198-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.84
1-199-24b	170-80	1	1	0	0	4	3	3	0	5.19	24.44	12	24.85	1.50
1-200-24b	170-80	1	0	0	2	6	2	2	0	2.91	20.21	14.59	22.83	1.24
1-201-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.18
1-202-24b	170-80	1	0	0	0	6	2	6	0	3.72	23.5	16.08	27.37	1.66
1-203-24b	170-80	0	0	0	0	0	0	0	0	0	0	0	0	4.72
1-204-24b	170-80	2	0	0	0	2	3	7	0	0	0	17.62	23.07	2.14
1-205-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.38

1-206-24b	170-80	3	0	0	1	1	0	0	0	0	0	0	0	1.16
1-207-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.94
1-208-24b	170-80	2	0	0	0	6	4	7	0	0	0	25.37	18.53	2.42
1-209-24b	170-80	1	1	0	2	6	4	2	0	3.21	24.01	18.69	26.98	2.02
1-210-24b	170-80	1	0	0	0	6	2	3	0	4.67	15.76	16.64	22.34	1.96
1-211-24b	170-80	1	0	0	1	6	2	3	0	3.38	26.67	21.14	30.65	3.40
1-212-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.58
1-213-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.20
1-214-24b	170-80	1	0	0	0	6	4	2	0	2.77	13.14	16.52	12.79	1.00
1-215-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.92
1-216-24b	170-80	1	1	0	0	3	4	6	0	3.72	13.56	25.8	13.7	1.68
1-217-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.98
1-218-24b	170-80	1	1	0	2	3	3	2	0	1.4	8.82	12.41	15.76	0.46
1-219-24b	170-80	3	0	0	0	3	6	0	0	0	0	0	0	0.78
1-220-24b	170-80	2	0	0	0	2	0	0	0	0	0	0	0	1.32
1-221-24b	170-80	1	0	0	0	3	2	2	0	3.45	9.65	21.3	19.58	1.50
1-222-24b	170-80	1	1	0	2	4	4	2	0	6.73	16.35	17.79	25.24	2.10
1-223-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	1.18
1-224-24b	170-80	1	1	0	2	3	4	1	0	4.09	21.6	15.79	22.08	1.56
1-225-24b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	2.12
1-226-24b	170-80	2	0	0	2	0	0	0	0	0	0	0	0	1.02
1-227-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.20
1-228-24b	170-80	1	0	0	0	4	2	3	0	4.14	14.26	16.55	23.04	2.10
1-229-24b	170-80	1	0	0	2	6	4	2	0	5.22	18.64	16.63	27.76	2.10
1-230-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.98
1-231-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.90
1-232-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.44
1-233-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.28
1-234-24b	170-80	2	0	0	0	6	0	6	0	0	0	0	0	1.28
1-235-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.58
1-236-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	2.20
1-237-24b	170-80	1	0	0	0	3	2	2	0	3.38	9.39	20.66	20.97	2.62
1-238-24b	170-80	1	0	0	0	0	2	2	0	2.39	11.42	17.02	21.55	0.78

1-239-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.48
1-240-24b	70-80													
1-241-24b	170-80	2	0	0	0	3	4	7	0	0	0	15.28	23.43	1.54
1-242-24b	170-80	1	0	0	0	6	2	2	0	1.67	21.1	11.47	20.37	0.64
1-243-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.84
1-244-24b	170-80	1	0	0	0	4	2	2	0	2.11	11.02	18.45	14.72	1.04
1-245-24b	170-80	1	1	0	2	3	4	3	0	3.22	11.19	15.93	21.15	1.44
1-246-24b	170-80	1	0	0	0	2	2	3	0	2.6	10.59	12.72	13.57	0.52
1-247-24b	170-80	2	0	0	0	2	2	7	0	0	0	22.7	17.6	2.44
1-248-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.74
1-249-24b	170-80	1	0	0	0	0	2	2	0	3.49	14.28	15.6	23.1	1.74
1-250-24b	170-80	1	1	0	0	2	4	6	0	2.38	7	17.93	24.2	1.48
1-251-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	4.84
1-252-24b	170-80	1	1	3	1	0	2	1	0	3.54	17.88	19.98	31.91	2.46
1-253-24b	170-80	1	0	0	0	4	2	2	0	1.64	9.47	20.81	21.55	1.78
1-254-24b	170-80	1	0	0	0	2	2	3	0	5.41	16.17	16.13	22.86	2.08
1-255-24b	170-80	1	0	0	0	0	2	2	0	3.31	8.01	19.02	19.94	1.18
1-256-24b	170-80	1	1	0	0	3	4	2	0	3.72	16.45	16.11	28.74	1.98
1-257-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.46
1-258-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.82
1-259-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.34
1-260-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.94
1-261-24b	170-80	1	0	0	0	5	2	6	0	1.96	9	19.02	26.45	1.98
1-262-24b	170-80	1	1	3	0	4	4	2	0	2.94	8.14	31.13	18.26	4.96
1-263-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	4.08
1-264-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.90
1-265-24b	170-80	1	0	0	0	4	2	2	0	2.97	8.39	18.21	20.8	1.02
1-266-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.44
1-267-24b	170-80	1	0	0	0	4	4	3	0	2.55	8.22	14.39	18.27	1.10
1-268-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.42
1-269-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.38
1-270-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	2.82
1-271-24b	170-80	1	0	0	0	4	2	2	0	1.93	4.48	21.38	14.51	1.30

1-272-24b	170-80	1	1	0	2	6	2	1	0	3.81	14.09	17.66	14.87	0.98
1-273-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.48
1-274-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.66
1-275-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	1.28
1-276-24b	170-80	1	0	0	0	3	3	6	0	2.87	6	18.4	19.96	0.96
1-227-24b	170-80	1	0	0	0	0	2	2	0	1.96	10.17	11.84	9.88	0.28
1-278-24b	170-80	1	0	0	0	2	4	2	0	3.43	13.35	11.81	17.88	0.78
1-279-24b	170-80	1	0	0	0	2	2	2	0	3.49	11.03	10.68	14.67	0.48
1-280-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.48
1-281-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.20
1-282-24b	170-80	3	0	0	0	6	0	0	0	0	0	0	0	0.34
1-283-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	2.78
1-284-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	2.24
1-285-24b	170-80	1	0	0	0	3	4	2	0	1.66	7.73	18.04	13.38	0.92
1-286-24b	170-80	1	0	0	0	4	4	6	0	3.64	10.93	18.33	13.67	0.76
1-287-24b	170-80	3	0	0	1	0	0	0	0	0	0	0	0	1.00
1-288-24b	170-80	1	1	0	0	4	4	3	0	5.15	15.15	14.59	17.51	1.66
1-289-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.70
1-290-24b	170-80	1	0	0	0	2	4	2	0	1.91	9.27	11.69	13.97	0.48
1-291-24b	170-80	1	1	0	0	0	4	2	0	1.89	14.86	13.53	19.54	0.60
1-292-24b	170-80	1	1	0	0	6	4	3	0	2.1	15.38	14.03	19.43	0.74
1-293-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.50
1-294-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.14
1-295-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.92
1-296-24b	170-80	1	0	0	0	6	4	3	0	2.99	18.85	13.22	22.1	1.04
1-297-24b	170-80	1	0	0	0	6	4	2	0	2.19	7.17	12.08	10.33	0.42
1-298-24b	170-80	1	0	0	0	6	2	2	0	2.33	15.92	11.64	16.75	1.00
1-299-24b	170-80	1	0	0	2	6	2	3	0	7.03	15.24	14.62	22.77	2.42
1-300-24b	170-80	1	0	0	0	3	4	2	0	1.24	10	13.95	15.21	0.78
1-301-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.94
1-302-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.18
1-303-24b	170-80	1	0	0	0	6	2	2	0	1.28	3.77	10.54	8.83	0.36
1-304-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	2.36

1-305-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.24
1-306-24b	170-80	1	1	0	2	6	4	1	0	3.33	15.04	14.84	22.4	1.46
1-307-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	0.90
1-308-24b	170-80	1	0	0	0	6	2	3	0	3.62	13.14	19.35	15.31	0.80
1-309-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.52
1-310-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	1.40
1-311-24b	170-80	1	0	0	0	3	4	2	0	3.17	6.15	15.66	13.72	0.60
1-312-24b	170-80	1	0	0	0	6	4	2	0	0.96	5.03	8.71	9.29	0.20
1-313-24b	170-80	1	0	0	0	6	0	2	0	3.63	12.5	10.14	12.02	0.56
1-314-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.26
1-315-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.62
1-316-2b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.22
1-317-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	1.20
1-318-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.12
1-319-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.68
1-320-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	1.70
1-321-24b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.60
1-322-24b	170-80	3	0	0	2	0	0	0	0	0	0	0	0	1.04
1-323-24b	170-80	1	0	0	0	6	2	2	0	2.1	7.57	13.94	10.4	0.56
1-324-24b	170-80	2	0	0	0	2	0	0	0	0	0	0	0	0.42
1-325-24b	170-80	1	0	0	0	6	4	6	0	1	8.18	12.27	11.59	0.42
1-326-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.74
1-327-24b	170-80	1	0	0	0	0	2	2	0	2.6	5.71	14.04	18.62	1.18
1-328-24b	170-80	2	0	0	0	6	0	0	0	0	0	0	0	1.26
1-329-24b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	0.30
1-001-29	180-90	1	1	3	2	0	2	2	0	5.25	12.47	52.31	19.44	9.88
1-002-29	180-90	1	0	0	0	0	4	2	0	15.03	40.06	49.04	41.54	34.58
1-003-29	180-90	1	0	0	2	3	2	1	0	7.42	31.15	25.73	31.24	7.80
1-004-29	180-90	1	0	3	0	5	4	2	0	8.36	19.1	42.26	23.63	7.40
1-005-29	180-90	1	1	3	0	6	4	3	0	4.59	25.87	35.22	41.16	10.32
1-006-29	180-90	1	1	1	2	4	4	3	0	14.52	43.13	35.52	74.16	37.69
1-007-29	180-90	1	1	1	1	0	4	6	0	2.69	16.97	31.25	87.12	26.56
1-008-29	180-90	1	1	3	2	5	4	2	0	3.58	24.19	58.73	51.78	38.46

1-009-29	180-90	1	1	2	0	5	2	2	0	13.75	35.92	46.96	61.51	34.50
1-010-29	180-90	1	1	3	0	5	4	2	0	7.33	20.08	62.12	44.98	45.70
1-011-29	180-90	2	0	3	0	3	0	0	0	0	0	0	0	16.08
1-012-29	180-90	1	1	3	2	4	4	1	0	18.66	48.93	33.51	52.15	35.58
1-013-29	180-90	1	1	3	2	2	4	7	0	0	0	26.92	41.95	7.58
1-014-29	180-90	1	1	3	0	4	2	2	0	7.38	19.01	36.11	52.52	19.72
1-015-29	180-90	1	1	3	0	3	3	2	0	366	14.09	43.02	38.32	11.72
1-016-29	180-90	1	0	3	0	3	2	2	0	9.88	40.54	28.69	42.86	10.70
1-017-29	180-90	2	0	3	0	5	4	7	0	0	0	45.74	34.72	18.18
1-018-29	180-90	1	1	3	0	3	4	3	0	7.5	21.79	36.85	35.6	11.02
1-019-29	180-90	1	1	3	0	4	3	6	0	2.34	12.98	40.76	61.31	21.48
1-020-29	180-90	1	1	3	2	4	4	6	0	13.62	35.97	26.53	43.23	13.60
1-021-29	180-90	1	1	3	0	4	4	2	0	22.55	50.62	63.84	83.06	75.34
1-022-29	180-90	2	0	0	0	3	3	0	0	0	0	49.03	27.2	9.40
1-023-29	180-90	1	1	3	1	1	2	3	0	5.82	25.81	31.8	29.41	8.52
1-024-29	180-90	1	1	3	0	2	2	2	0	1.96	8.89	25.37	46.57	6.72
1-025-29	180-90	1	1	3	0	5	4	2	0	9.74	26.27	35.67	39.43	11.64
1-026-29	180-90	1	1	3	0	3	4	3	0	8.59	29.97	45.07	29.65	13.70
1-027-29	180-90	1	1	3	0	2	2	2	0	17.91	19.19	68.6	27.3	25.22
1-028-29	180-90	1	1	3	2	5	4	3	0	7.67	31.71	32.61	53.66	13.02
1-029-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	9.62
1-030-29	180-90	2	0	0	0	3	0	0	0	0	0	0	0	15.36
1-031-29	180-90	1	0	0	0	3	2	2	0	8.16	30.61	25.65	42.96	12.56
1-032-29	180-90	1	0	0	0	3	4	3	0	5.18	22.94	42.24	24.88	5.86
1-033-29	180-90	1	0	0	0	3	2	3	0	7.68	33.69	22.51	47.34	7.84
1-034-29	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.20
1-035-29	180-90	1	1	3	0	4	4	2	0	4.92	18.16	35.7	35.98	7.38
1-035-29	180-90	2	0	0	0	6	0	0	0	0	0	0	0	8.94
1-037-29	180-90	1	1	3	2	3	4	3	0	4.71	18.34	39.08	34.29	7.66
1-038-39	180-90	1	1	3	0	3	4	2	0	6.24	22.41	37.89	37.92	9.57
1-039-29	180-90	1	0	0	2	4	2	3	0	8.54	36.38	34.26	47.59	15.86
1-040-29	180-90	1	0	0	0	3	4	2	0	4.47	28.94	26.4	39.21	4.52
1-041-29	180-90	1	0	0	2	6	2	1	0	9.88	39.83	31.97	58.14	13.46

1-042-29	180-90	2	0	0	0	6	0	0	0	0	0	0	0	8.12
1-043-29	180-90	1	0	3	0	2	3	2	0	9.94	27.26	48.46	38.96	13.30
1-044-29	180-90	2	0	0	0	0	0	0	0	0	0	0	0	4.74
1-045-29	180-90	1	1	0	0	2	4	3	0	9.12	36.72	29.17	36.82	6.48
1-046-29	180-90	1	1	0	0	4	4	2	0	3.23	19.29	34.96	28.43	6.10
1-047-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	3.62
1-048-29	180-90	1	0	0	0	3	2	2	0	5.61	10.77	33.66	20.59	6.18
1-049-29	180-90	1	0	0	0	6	2	2	0	4.29	16.5	18.64	30.65	4.08
1-050-29	180-90	2	0	0	0	3	4	6	0	0	0	0	0	6.44
1-051-29	180-90	1	0	0	0	3	2	2	0	4.74	18.16	25.76	24.09	5.26
1-052-29	180-90	1	1	0	0	3	4	3	0	6.93	19.48	20.36	26.98	4.56
1-053-29	180-90	1	1	0	0	6	4	3	0	2.18	17.71	24.13	43.78	4.62
1-054-29	180-90	1	0	0	0	2	2	2	0	1.9	10.84	22.88	29.43	3.68
1-055-29	180-90	1	1	0	0	2	4	3	0	3.19	16.22	27.86	21.19	2.34
1-056-29	180-90	1	1	3	0	5	4	3	0	5.81	46.95	32.61	42.55	12.96
1-057-29	180-90	1	1	0	0	6	4	2	0	3.79	11.28	23.82	20.79	2.50
1-058-29	180-90	1	0	0	0	6	4	2	0	6.19	9.67	28.05	13.91	2.28
1-059-29	180-90	1	0	0	2	3	2	1	0	7.61	24.88	23.19	28	6.26
1-060-29	180-90	1	1	0	0	3	4	2	0	6.51	16.97	19.74	17.91	2.16
1-061-29	180-90	1	1	0	0	4	2	6	0	1.92	10.8	19.6	23.94	2.44
1-062-29	180-90	1	1	0	0	4	4	6	0	2.57	16.89	23.9	34.72	3.30
1-063-29	180-90	1	1	0	0	4	2	2	0	4.01	20.06	33.55	25.81	4.12
1-064-29	180-90	1	0	0	0	4	2	3	0	6.2	13.52	22.8	22.72	4.10
1-065-29	180-90	1	1	1	0	2	4	2	0	3.77	9.07	19.76	29.82	1.88
1-066-29	180-90	1	1	0	0	6	4	2	0	2.36	26.3	14.05	29.84	2.30
1-067-29	180-90	1	0	0	0	2	2	3	0	5.04	16.69	18.13	19.05	2.16
1-068-29	180-90	1	0	0	0	2	4	2	0	3.55	20.61	28.14	27.06	2.46
1-069-29	180-90	1	1	0	0	3	4	6	0	1.87	12.72	18.19	22.52	1.52
1-070-29	180-90	1	1	0	0	2	2	2	0	2.49	14.11	19.92	24.52	2.28
1-071-29	180-90	1	1	3	2	3	4	2	0	3.68	11.96	36.3	39.49	4.76
1-072-29	180-90	1	0	0	0	3	4	2	0	7.91	12.17	40.16	20.87	6.30
1-073-29	180-90	1	1	0	2	3	4	2	0	8.82	27.1	24.6	36.84	5.88
1-074-29	180-90	2	0	0	0	6	0	0	0	0	0	0	0	2.14

1-075-29	180-90	1	1	0	0	5	4	3	0	6.33	23.36	24.68	36.44	4.92
1-076-29	180-90	1	1	0	0	3	2	6	0	3.15	7.4	28.8	19.15	2.36
1-077-29	180-90	1	0	0	0	3	2	2	0	2.9	13.07	18.65	30.03	3.36
1-078-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	2.62
1-079-29	180-90	1	1	0	0	3	4	6	0	2.59	5.46	21.66	24.77	2.76
1-080-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	1.40
1-081-29	180-90	1	0	0	2	6	4	2	0	5.72	24.9	20.16	32.91	5.02
1-082-29	180-90	2	0	0	0	2	0	0	0	0	0	0	0	1.10
1-083-29	180-90	1	0	0	0	6	4	2	0	6.05	11.62	25.63	18.78	2.16
1-084-29	180-90	1	0	0	0	6	2	2	0	4.92	20.09	15.69	21.41	1.68
1-085-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	1.64
1-086-29	180-90	1	1	0	0	3	2	2	0	3.6	12.48	12.11	16.97	0.66
1-087-29	180-90	1	0	0	0	6	2	2	0	2.79	21.64	20.09	28.07	2.16
1-088-29	180-90	2	0	0	0	3	0	0	0	0	0	0	0	0.74
1-089-29	180-90	1	0	0	0	0	2	6	0	3.74	17.14	15.2	26.18	1.36
1-090-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.56
1-091-29	180-90	1	0	0	0	2	2	2	0	3.93	13.61	16.25	20.61	1.30
1-092-29	180-90	1	1	0	0	3	4	2	0	2.08	8.54	25.86	22.71	1.72
1-093-29	180-90	1	1	0	0	3	2	2	0	1.47	9.66	17.45	11	0.64
1-094-29	180-90	2	0	0	0	2	0	0	0	0	0	0	0	1.08
1-095-29	180-90	2	0	0	0	3	0	0	0	0	0	0	0	2.36
1-096-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	1.24
1-097-29	180-90	2	0	0	0	3	0	0	0	0	0	0	0	1.30
1-098-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	2.16
1-099-29	180-90	1	1	0	0	6	2	2	0	2.74	15.65	14.73	16.79	1.00
1-100-29	180-90	1	1	0	2	2	4	1	0	5.49	19.06	19.71	23.62	1.88
1-101-29	180-90	1	0	0	0	2	2	6	0	3.88	11.35	18.52	25.56	1.46
1-102-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	1.22
1-103-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.94
1-104-29	180-90	1	0	0	2	2	2	6	0	6.71	16.95	23.26	19.14	3.72
1-105-29	180-90	1	1	1	0	3	4	2	0	1.62	6.67	10	17.84	0.42
1-106-29	180-90	1	1	0	0	2	2	2	0	2.14	8.88	14.28	14.86	0.94
1-107-29	180-90	1	0	0	0	6	4	2	0	3.49	9.55	19.04	11.53	0.70

1-108-29	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.74
1-109-29	180-90	1	0	0	0	4	4	2	0	3.15	11.73	26.74	16.63	2.42
1-110-29	180-90	2	0	0	0	4	0	0	0	0	0	0	0	0.48
1-111-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	1.88
1-112-29	180-90	1	0	0	2	0	4	2	0	7.64	10.56	26.66	11.66	1.96
1-113-29	180-90	1	0	0	2	0	4	6	0	1.15	6.13	11.98	20.99	1.34
1-114-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	2.54
1-115-29	180-90	1	0	0	0	0	4	2	0	4.5	13.28	16.93	13.6	1.22
1-116-29	180-90	1	0	0	0	2	3	2	0	4.62	8.56	22.6	20.69	3.50
1-117-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.52
1-118-29	180-90	1	0	0	0	3	2	6	0	0.62	5.19	8.89	12.69	0.20
1-119-29	180-90	1	1	0	2	2	4	2	0	1.5	6.36	17.37	10.55	0.40
1-120-29	180-90	1	0	0	1	0	2	1	0	2.73	14.92	15.08	30.79	2.24
1-121-29	180-90	1	0	0	0	3	2	2	0	1.91	18.22	17.01	20.47	1.24
1-122-29	180-90	1	0	0	0	0	4	2	0	1.66	9.15	15.56	14.86	0.52
1-123-29	180-90	1	0	0	0	6	4	2	0	4.45	15.87	16.78	25.01	1.50
1-124-29	180-90	1	0	0	2	0	4	2	0	5.96	11.97	28.91	20.11	3.18
1-125-29	180-90	2	0	0	0	5	0	0	0	0	0	0	0	1.40
1-126-29	180-90	2	0	0	0	6	0	0	0	0	0	0	0	1.44
1-127-29	180-90	2	0	0	0	6	0	0	0	0	0	0	0	0.76
1-128-29	180-90	1	0	0	0	2	2	3	0	4.75	13.34	14.92	19.03	1.60
1-129-29	180-90	2	0	0	0	4	0	0	0	0	0	0	0	1.28
1-130-29	180-90	1	0	0	0	6	2	2	0	2.71	6.77	9.72	8.96	0.24
1-131-29	180-90	2	0	0	0	6	0	0	0	0	0	0	0	0.76
1-132-29	180-90	1	0	0	0	4	2	3	0	2.74	11.03	22.47	21.92	1.70
1-133-29	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.20
1-134-29	180-90	3	0	0	2	0	0	0	0	0	0	0	0	1.02
1-135-29	180-90	1	0	0	0	6	2	2	0	2.13	7.15	12.46	14	0.48
1-136-29	180-90	1	1	0	0	2	4	3	0	3.21	13.55	14.59	16.74	0.74
1-137-29	180-90	1	1	0	0	2	2	2	0	1.75	6.41	8.8	14.35	0.34
1-138-29	180-90	1	1	0	0	2	2	2	0	1.96	16.69	12.12	20.96	0.86
1-139-29	180-90	2	0	0	0	4	0	0	0	0	0	0	0	4.28
1-140-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.26

1-141-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.20
1-142-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.78
1-143-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.12
1-144-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.80
1-145-29	180-90	1	0	0	0	6	2	2	0	1.23	5.96	13.34	13.67	0.50
1-146-29	180-90	1	0	0	0	3	2	2	0	1.34	8.23	16.81	18.11	0.88
1-147-29	180-90	1	1	0	0	2	2	6	0	1.94	10.42	20.85	20.71	1.30
1-148-29	180-90	2	0	0	0	6	0	0	0	0	0	0	0	1.20
1-150-29	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.08
1-151-29	180-90	1	0	0	0	3	2	2	0	3.6	10.24	19.78	18.22	1.52
1-001-98b	167-100	2	0	3	0	3	0	0	0	0	0	0	0	31.16
1-002-98b	167-100	1	0	3	0	6	2	6	0	2.14	9.66	35.89	37.34	12.00
1-003-98b	167-100	1	1	3	0	4	2	2	0	5.29	16.59	31.66	53.83	20.22
1-004-98b	167-100	2	0	0	0	3	0	0	0	0	0	0	0	4.74
1-005-98b	167-100	1	1	3	2	2	4	2	0	5.42	15.73	42.29	39.71	15.82
1-006-98b	167-100	1	0	0	0	6	2	3	0	8.32	15.12	33.83	18.89	8.98
1-007-98b	167-100	1	0	3	0	3	2	2	0	3.07	13.3	28.11	26.03	4.16
1-008-98b	167-100	1	0	3	0	6	4	6	0	1.8	16.47	43.25	38.19	9.94
1-009-98b	167-100	1	0	3	0	3	2	2	0	4.33	11.45	26.12	33.05	5.18
1-010-98b	167-100	1	1	3	0	3	4	2	0	5.08	12.5	36.71	19.48	4.64
1-011-98b	167-100	1	0	3	0	4	4	6	0	4.68	22.38	28.25	26.56	4.32
1-012-98b	167-100	1	1	3	0	4	4	2	0	5.85	18.64	33.06	29.78	5.74
1-013-08b	167-100	2	0	0	2	6	0	0	0	0	0	0	0	7.16
1-014-98b	167-100	1	1	3	0	3	4	2	0	6.45	13.22	45.08	26.04	7.36
1-015-98b	167-100	1	1	3	0	4	4	3	0	6.5	13.24	34.14	35.77	9.22
1-016-98b	167-100	1	0	3	0	3	2	2	0	4.8	17.06	26.27	39.49	7.04
1-017-98b	167-100	1	1	3	0	4	4	2	0	7.28	26.41	48.32	35.71	14.98
1-018-98b	167-100	1	1	0	0	5	2	2	0	2.95	6.33	36.16	13.37	4.24
1-019-98b	167-100	3	0	0	1	0	0	0	0	0	0	0	0	3.44
1-020-98b	167-100	1	1	1	0	3	4	3	0	5.63	27.59	21.78	52.92	11.50
1-021-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	7.82
1-022-98b	167-100	1	1	3	0	3	4	3	0	6.06	24.59	32.11	30.21	4.62
1-023-98b	167-100	1	1	3	0	6	4	3	0	4.08	31.43	25.9	41.21	7.66

1-024-98b	167-100	1	1	3	2	6	4	1	0	9.96	42.29	23.58	42.26	7.64
1-025-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	5.98
1-026-98b	167-100	1	1	3	0	4	4	2	0	3.97	13.44	30.6	37.31	6.22
1-027-98b	167-100	1	1	1	0	2	4	3	0	3.75	17.33	17.72	32.66	3.68
1-028-98b	167-100	1	0	3	0	5	2	3	0	8.5	36.8	28.75	38.73	10.80
1-029-98b	167-100	1	1	3	2	4	4	2	0	4.45	12.86	37.57	42.85	11.24
1-030-98b	167-100	1	1	2	2	4	4	2	0	3.85	30.96	43.77	61.78	23.36
1-031-98b	167-100	1	1	3	0	4	4	3	0	2.07	13.47	36.78	56.87	15.56
1-032-98b	167-100	1	1	3	2	4	4	3	0	9.15	47.15	50.46	74.56	30.62
1-033-98b	167-100	1	1	3	2	4	4	2	0	1.82	9.67	38.99	33.86	9.10
1-034-98b	167-100	1	1	3	0	5	3	2	0	4.25	19.94	33.06	28.54	3.94
1-035-98b	167-100	1	1	3	0	2	4	2	0	6.35	18.42	30.03	42.51	6.04
1-036-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	2.70
1-037-98b	167-100	1	0	3	0	3	2	2	0	8.61	21.96	26.27	37.53	7.10
1-038-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	5.10
1-039-98b	167-100	1	1	3	0	5	4	2	0	7.17	13.59	52.84	55.61	19.64
1-040-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	6.82
1-041-98b	167-100	1	0	0	0	3	4	6	0	7.32	14.96	21.05	25.64	4.74
1-042-98b	167-100	1	1	3	0	3	4	2	0	5.62	20.99	29.82	39.15	7.36
1-043-98b	167-100	1	0	0	0	3	4	6	0	3.65	10.95	30.81	20.34	2.78
1-044-98b	167-100	1	0	0	0	4	4	2	0	7	19.84	47.64	30.73	12.98
1-045-98b	167-100	1	0	3	0	6	2	3	0	4.9	28.27	24.45	44.71	6.58
1-046-98b	167-100	1	0	0	0	5	4	6	0	3.26	25.73	21.06	44.2	4.30
1-047-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	3.24
1-048-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	7.22
1-049-98b	167-100	1	1	3	0	4	4	2	0	7.12	30.17	26.68	37.28	6.36
1-050-98b	167-100	1	1	3	2	2	4	1	0	8.01	55.29	32.58	54.82	15.08
1-051-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	5.58
1-052-98b	167-100	1	1	0	0	4	2	2	0	3.73	30.5	30.48	23.65	4.08
1-053-98b	167-100	1	0	0	0	3	2	3	0	5.43	24.57	20.93	24.65	4.44
1-054-98b	167-100	1	0	0	0	2	4	3	0	3.05	13.48	21.88	27.44	3.34
1-055-98b	167-100	1	0	0	0	4	4	3	0	4.16	24.63	22.41	25.58	3.18
1-056-98b	167-100	1	1	0	0	3	4	2	0	2.18	10.12	32.37	16.37	3.62

1-057-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.60
1-058-98b	167-100	1	0	0	0	3	2	3	0	3.33	13.06	20.42	22.8	3.44
1-059-98b	167-100	1	1	0	0	2	2	2	0	4.99	17.98	30.27	23.16	3.62
1-060-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.40
1-061-98b	167-100	1	1	1	2	2	4	2	0	6.4	17.52	26.81	37.67	6.18
1-062-98b	167-100	1	1	3	0	4	4	3	0	6.91	36.22	32.44	37.41	9.64
1-063-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	2.32
1-064-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.82
1-065-98b	167-100	1	1	0	0	4	4	2	0	3.19	14.15	25.71	26.89	3.26
1-066-98b	167-100	1	1	0	0	3	4	2	0	3.06	11.88	18.98	22.32	1.32
1-067-98b	167-100	1	0	0	0	5	2	3	0	5.71	23.85	29.57	26.4	5.64
1-068-98b	167-100	1	0	0	0	4	2	3	0	3.89	15.79	31.04	24.22	3.58
1-069-98b	167-100	1	1	3	2	4	4	2	0	3.31	33.5	23.97	38.93	7.12
1-070-98b	167-100	1	1	1	0	4	4	2	0	3.45	24.14	34.25	36.92	8.04
1-071-98b	167-100	1	1	3	0	5	4	3	0	5.51	23.76	34.84	25.07	7.16
1-072-98b	167-100	1	1	3	2	3	4	2	0	1.55	13.24	27.6	35.15	6.52
1-073-98b	167-100	1	1	0	2	4	2	2	0	4.15	6.6	29.55	10.65	2.02
1-074-98b	167-100	1	0	0	0	2	2	2	0	6.7	17.37	21.3	23.24	3.98
1-075-98b	167-100	1	0	0	0	2	4	2	0	6.71	11.88	24.81	13.88	2.28
1-076-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	4.70
1-077-98b	167-100	1	1	0	0	2	2	3	0	6.11	22.09	27.11	27.03	3.50
1-078-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	2.36
1-079-98b	167-100	1	0	0	0	3	2	3	0	6.6	12.88	21.4	18.45	3.24
1-080-98b	167-100	1	1	0	0	4	4	2	0	3.57	11.37	22.08	27.94	3.20
1-081-98b	167-100	1	0	0	2	3	4	2	0	3.81	8.82	35.85	17.32	4.76
1-082-98b	167-100	1	0	0	0	2	2	2	0	1.92	5.31	24.53	17.11	1.52
1-083-98b	167-100	1	1	3	0	5	3	3	0	8.78	19.6	42.02	27.39	7.50
1-084-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	2.80
1-085-98b	167-100	1	0	0	0	2	2	2	0	3.97	19.36	27.52	28.7	4.08
1-086-98b	167-100	1	0	0	0	3	4	2	0	2.66	7.85	21.29	28.61	2.04
1-087-98b	167-100	1	0	0	2	4	2	2	0	3.95	11.14	42.7	25.2	8.36
1-088-98b	167-100	1	1	3	0	5	4	2	0	6.22	14.49	32.78	29.97	6.42
1-089-98b	167-100	1	1	3	2	4	4	3	0	5.39	28.02	27.83	37.12	7.26

1-090-98b	167-100	1	1	1	0	3	4	6	0	6.88	34.99	14.42	48.53	4.84
1-091-98b	167-100	1	1	0	0	6	4	2	0	6.65	22.68	30.12	26.22	6.68
1-092-98b	167-100	1	0	3	0	2	4	6	0	4.93	20.23	32.02	32.04	7.32
1-093-98b	167-100	1	0	0	0	3	2	2	0	1.47	7.81	27.19	23.05	2.44
1-094-98b	167-100	1	1	0	0	3	4	2	0	3.94	14.08	33.76	24.18	3.56
1-095-98b	167-100	1	0	0	0	2	2	2	0	3.68	22.76	21.83	27.34	2.28
1-096-98b	167-100	1	0	0	0	2	2	3	0	4.5	19.83	18.42	20.47	2.32
1-097-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	2.46
1-098-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	9.32
1-099-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	2.94
1-100-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.88
1-101-98b	167-100	1	0	0	0	2	2	3	0	5.9	25.31	23.92	25.82	4.36
1-102-98b	167-100	1	1	0	0	5	4	2	0	4.27	18.47	18.49	25.57	2.94
1-103-98b	167-100	1	1	0	0	4	4	3	0	4.97	22.47	27.13	26.13	3.74
1-104-98b	167-100	1	0	0	0	0	2	2	0	4.77	17.92	25.91	28.7	3.08
1-105-98b	167-100	1	1	0	0	4	4	2	0	4.52	10.15	20.19	28.7	3.42
1-106-98b	167-100	1	0	0	0	4	4	2	0	4.48	9.12	25.12	35.32	4.44
1-107-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	2.74
1-108-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.86
1-109-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.64
1-110-98b	167-100	1	1	0	0	3	4	2	0	5.9	14.27	27.28	23.38	3.64
1-111-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.46
1-112-98b	167-100	1	0	0	0	6	4	2	0	3.5	25.81	14.23	26.54	1.16
1-113-98b	167-100	1	0	0	0	2	2	2	0	4.77	13.11	20.09	19.03	2.00
1-114-98b	167-100	1	0	0	0	3	2	3	0	3.86	11.49	19.04	27.99	3.06
1-115-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	2.90
1-116-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.06
1-117-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.28
1-118-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.68
1-119-98b	167-100	1	0	0	0	3	2	2	0	2.11	7.21	15.52	19.66	1.28
1-120-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.52
1-121-98b	167-100	1	0	0	2	6	2	6	0	4.17	12.83	30.34	24.97	3.86
1-122-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.36

1-123-98b	167-100	1	0	0	2	6	2	0	0	1.93	3.53	12.06	9.84	0.42
1-124-98b	167-100	2	0	0	1	0	0	0	0	0	0	0	0	3.14
1-125-98b	167-100	1	0	0	0	3	2	6	0	1.18	7.98	12.13	15.08	0.66
1-126-98b	167-100	1	1	3	2	4	4	2	0	1.68	5.98	16.7	23.94	0.88
1-127-98b	167-100	1	0	0	0	0	2	2	0	6.4	21.47	17.21	30.46	3.66
1-128-98b	167-100	1	0	0	0	0	2	2	0	1.18	7.64	9.8	11.69	0.46
1-129-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	2.72
1-130-98b	167-100	1	0	0	0	3	2	2	0	2.68	7.6	7.15	13.95	0.42
1-131-98b	167-100	1	1	0	0	2	4	2	0	4.73	17.01	18.55	17.71	1.38
1-132-98b	167-100	1	1	1	0	3	4	2	0	3.86	17.36	22.96	35.03	2.88
1-133-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.56
1-134-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.10
1-135-98b	167-100	1	0	0	0	3	2	3	0	2.48	10.36	15.33	21.15	0.98
1-136-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.60
1-137-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	2.54
1-138-98b	167-100	1	0	0	0	4	2	2	0	1.2	4.34	16.62	11.5	0.66
1-139-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.52
1-140-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.94
1-141-98b	167-100	1	0	0	0	2	4	2	0	3.16	14.38	17.18	13.35	1.36
1-142-98b	167-100	1	1	0	0	6	2	2	0	1.31	4.88	18.38	18.49	1.06
1-143-98b	167-100	1	0	0	0	2	2	3	0	5.83	19.35	20.01	20.61	2.60
1-144-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.80
1-145-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.78
1-146-98b	167-100	1	0	0	0	5	2	2	0	2.05	8.6	14.62	17.67	0.70
1-147-98b	167-100	1	0	0	0	6	2	3	0	3.98	16.59	12.86	23.07	1.20
1-148-98b	167-100	1	1	0	2	3	4	6	0	0.92	6.57	26.15	15.55	1.28
1-149-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.36
1-150-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.30
1-151-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.30
1-152-98b	167-100	1	0	0	0	4	2	2	0	0.75	2.88	10.14	10.5	0.26
1-153-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.96
1-154-98b	167-100	1	0	0	0	6	2	3	0	6.45	11.05	17.19	9.87	0.74
1-155-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.68

1-156-98b	167-100	1	1	0	0	4	4	2	0	2.51	7.85	21.89	27.63	2.50
1-157-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.30
1-158-98b	167-100	1	0	0	0	3	2	3	0	4.32	23.04	13.43	23.82	2.08
1-159-98b	167-100	1	0	0	0	6	2	2	0	3.62	12.39	8.3	17.25	0.70
1-160-98b	167-100	1	1	0	0	3	4	3	0	3.71	13.19	10.79	17.86	0.86
1-161-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.12
1-162-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.72
1-163-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.34
1-164-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.68
1-165-98b	167-100	1	0	0	0	6	2	2	0	4.61	8.88	19.02	22.94	2.10
1-166-98b	167-100	1	0	0	0	3	2	2	0	1.6	8.02	19.96	22.66	1.94
1-167-98b	167-100	1	1	0	0	3	4	3	0	4.01	13.57	17	13.77	0.76
1-168-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.46
1-169-98b	167-100	1	1	0	0	2	4	2	0	2.21	5.98	14.95	10.51	0.46
1-170-98b	167-100	1	0	0	0	6	2	2	0	2.31	7.33	7.6	9.44	0.20
1-171-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.34
1-172-98b	167-100	1	1	0	0	2	2	6	0	2.87	20.12	28.36	26.84	4.76
1-173-98b	167-100	1	1	0	0	6	4	2	0	4.3	8.98	15.02	9.53	0.50
1-174-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.88
1-175-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.40
1-176-98b	167-100	1	1	0	0	2	3	3	0	2.35	10.15	17.65	19.82	1.22
1-177-98b	167-100	1	1	0	0	2	4	3	0	2.01	3.76	17.22	10.3	0.36
1-178-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.70
1-179-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.48
1-180-98b	167-100	1	0	0	0	6	2	3	0	4.29	7.61	12.75	19.69	1.06
1-181-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.46
1-182-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-183-98b	167-100	1	0	0	2	0	2	1	0	6.62	20.53	16.72	19.91	2.44
1-184-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.66
1-185-98b	167-100	1	0	0	0	4	4	3	0	4.75	16.03	22.58	27.71	2.86
1-186-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.54
1-187-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.68
1-188-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.30

1-189-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.02
1-190-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.18
1-191-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.62
1-192-98b	167-100	1	0	0	0	6	2	2	0	2.61	11.02	21.88	15.78	1.02
1-193-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.38
1-194-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.36
1-195-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.42
1-196-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.56
1-197-98b	167-100	1	0	0	0	0	2	3	0	3.68	12.51	8.59	12.71	0.30
1-198-98b	167-100	1	0	0	0	4	3	6	0	2.94	8.91	11.22	14.17	0.56
1-199-98b	167-100	1	1	0	0	6	4	2	0	2.7	15.13	13.68	21.86	1.22
1-200-98b	167-100	1	0	0	0	6	0	6	0	2.94	11.33	18.92	25.69	2.04
1-201-98b	167-100	1	0	0	0	2	2	2	0	4.22	9.11	15.86	12.7	1.06
1-202-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.50
1-203-98b	167-100	1	0	0	0	4	2	6	0	2.58	8.44	21.06	13.1	1.38
1-204-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.04
1-205-98b	167-100	1	0	0	0	0	4	2	0	3.01	15.85	14.39	16.03	0.72
1-206-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.80
1-207-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.60
1-208-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.66
1-209-98b	167-100	1	0	0	0	2	2	2	0	3.35	13.61	13.37	16.35	1.00
1-210-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.68
1-211-98b	167-100	1	0	0	0	6	2	3	0	3.21	12.14	6.4	20.96	0.54
1-212-98b	167-100	1	0	0	0	0	0	0	0	0	0	0	0	1.64
1-213-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.40
1-214-98b	167-100	1	0	0	0	2	2	2	0	3.33	5.94	15.14	14.59	1.02
1-215-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.38
1-216-98b	167-100	1	0	0	0	6	2	2	0	1.75	7.84	12.31	14.64	0.52
1-217-98b	167-100	1	0	0	0	0	2	2	0	2.32	6.4	16.37	8.44	0.44
1-218-98b	167-100	1	0	0	0	2	2	2	0	2.64	7.79	12.51	12.72	0.56
1-219-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.92
1-220-98b	167-100	1	0	0	0	3	2	2	0	4.7	14.79	20.24	24.31	3.44
1-211-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.34

1-222-98b	167-100	1	1	0	0	3	4	3	0	1.67	5.78	15.59	16.44	0.68
1-223-98b	167-100	1	0	0	2	6	4	2	0	2.46	5.91	18.75	12.09	0.62
1-224-98b	167-100	1	0	0	0	2	2	3	0	1.72	12.06	14.97	18.37	0.96
1-225-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.28
1-226-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.36
1-227-98b	167-100	1	0	0	0	6	4	3	0	1.77	9.78	14.63	18.98	0.50
1-228-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.80
1-229-98b	167-100	1	0	0	0	2	2	2	0	3.21	7.87	18.25	11.72	0.92
1-230-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.90
1-231-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.50
1-232-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.22
1-233-98b	167-100	1	0	0	0	2	2	2	0	1.48	5.26	13.48	9.84	0.32
1-234-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.46
1-235-98b	167-100	1	0	0	0	3	4	2	0	1.85	12.2	9.59	12.66	0.26
1-236-98b	167-100	1	1	0	0	3	4	6	0	1.22	9.17	14.96	14.2	0.56
1-237-98b	167-100	1	0	0	0	6	2	0	0	1.58	8.88	12.25	9.1	0.34
1-238-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.44
1-239-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.50
1-240-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.32
1-241-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-242-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.50
1-243-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.64
1-244-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.24
1-245-98b	167-100	1	1	0	0	2	4	3	0	4.06	21.88	15.32	23.19	1.64
1-246-98b	167-100	1	1	0	0	3	2	2	0	1.71	6.34	15.05	9.11	0.50
1-247-98b	167-100	1	0	0	2	2	4	1	0	4.66	18.42	16.63	18.6	1.34
1-248-98b	167-100	1	0	0	0	3	2	2	0	1.58	3.86	12.75	12.21	0.58
1-249-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.58
1-250-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.48
1-251-98b	167-100	1	0	0	0	0	2	3	0	3.75	12.88	10.74	14.6	0.56
1-252-98b	167-100	1	0	0	0	6	2	6	0	2.94	14.01	8.11	20.43	0.76
1-253-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.52
1-254-98b	167-100	1	0	0	0	0	2	6	0	3.91	7.95	11.21	14.52	0.42

1-255-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.40
1-256-98b	167-100	1	0	0	2	6	2	1	0	6.48	17.24	10.21	17.36	1.22
1-257-98b	167-100	1	1	0	0	3	4	6	0	1.71	8.84	9.82	18.29	0.68
1-258-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.40
1-259-98b	167-100	1	1	0	0	3	3	2	0	1.88	5.37	18.93	15.14	1.16
1-260-98b	167-100	1	1	0	1	2	4	1	0	2.13	7.75	17.6	8.05	0.48
1-261-98b	167-100	1	0	0	0	2	2	6	0	3.51	12.57	13.68	13.23	0.72
1-262-98b	167-100	1	0	0	2	2	2	3	0	1.9	18.01	19.22	22.2	1.50
1-263-98b	167-100	1	0	0	0	0	4	2	0	1.8	5.38	10.64	8.38	0.30
1-264-98b	167-100	1	0	0	0	2	4	6	0	3.95	10.75	13.06	10.17	0.36
1-265-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.46
1-266-98b	167-100	1	1	0	0	3	2	2	0	4.16	11.33	24.05	13.17	1.64
1-267098b	167-100	1	1	0	0	4	2	2	0	1.27	6.52	14.54	12.99	0.56
1-268-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.44
1-269-98b	167-100	1	0	0	0	3	2	2	0	7.92	17.02	22.34	18.82	2.80
1-270-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.32
1-271-98b	167-100	1	1	0	0	3	4	2	0	1.7	9.09	20.16	9.86	0.62
1-272-98b	167-100	1	0	0	0	2	2	3	0	6.98	13.6	14.79	22.34	2.36
1-273-98b	167-100	1	0	0	1	0	2	2	0	5.32	28.08	15.17	28.36	2.40
1-274-98b	167-100	1	0	0	0	3	2	3	0	5.81	14.19	25.57	21.71	2.90
1-275-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.20
1-276-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.70
1-277-98b	167-100	1	0	0	0	0	2	6	0	2.91	7.15	12.8	19.54	0.70
1-278-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.54
1-279-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.74
1-280-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.28
1-281-98b	167-100	1	1	0	0	4	4	2	0	1.77	6.98	15.18	13.01	0.56
1-282-98b	167-100	1	0	0	0	4	2	2	0	1.59	4.53	10.52	11.8	0.32
1-283-98b	167-100	1	0	0	0	6	2	6	0	2.68	14.78	5.63	14.7	0.22
1-284-98b	167-100	1	0	0	0	2	2	2	0	3.08	11.74	12.96	13.89	0.52
1-285-98b	167-100	1	0	0	0	6	0	0	0	2.61	9.68	7.74	10.99	0.16
1-286-98b	167-100	1	0	0	0	2	4	6	0	3.12	21.64	17.58	31.45	2.02
1-287-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.34

1-288-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.48
1-289-98b	167-100	1	0	0	0	2	2	2	0	1.42	5.01	8.77	13.65	0.34
1-290-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.24
1-291-98b	167-100	1	1	0	0	4	2	2	0	2.33	10.29	20.67	34.45	2.80
1-292-98b	167-100	1	0	0	0	4	4	6	0	1.49	6.55	26.66	20.1	3.26
1-293-98b	167-100	1	0	0	0	5	4	6	0	3.4	16.84	22.95	18.81	2.40
1-294-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.66
1-295-98b	167-100	1	0	0	0	3	4	6	0	1.01	6.67	12.24	19.8	0.78
1-296-98b	167-100	1	0	0	0	2	2	2	0	1.83	6.43	8.85	9.18	0.18
1-297-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.48
1-298-98b	167-100	1	0	0	0	0	2	2	0	1.57	11.23	11.56	17.78	0.66
1-299-98b	167-100	1	0	0	0	2	2	6	0	2.39	9.47	14.08	13.38	0.68
1-300-98b	167-100	1	1	0	0	6	3	2	0	1.3	7.85	7.07	12.48	0.16
1-301-98b	167-100	1	1	0	0	4	4	2	0	1.26	5.86	16.97	11.77	0.66
1-302-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.24
1-303-98b	167-100	1	0	0	0	6	2	6	0	0.86	4.3	8.34	14.32	0.22
1-304-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.66
1-305-98b	167-100	1	0	0	0	6	2	0	0	3.21	7.07	10.95	7.21	0.22
1-306-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.16
1-307-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.14
1-308-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.38
1-309-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.22
1-310-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.38
1-311-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.40
1-312-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.12
1-313-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.36
1-314-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.12
1-315-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.16
1-316-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.20
1-317-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.24
1-318-98b	167-100	1	0	0	0	2	2	2	0	1.75	8.71	8.86	10.88	0.22
1-319-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.24
1-320-98b	167-100	1	2	0	2	3	2	3	0	4.39	14.51	12.89	15.08	0.86

1-321-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.06
1-322-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.18
1-323-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.72
1-324-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.68
1-325-98b	167-100	1	0	0	0	0	2	3	0	3.34	14.71	14.56	17.29	0.84
1-326-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.66
1-327-98b	167-100	1	1	0	0	0	4	2	0	4.7	12.3	11.06	12.37	0.48
1-328-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.30
1-329-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.22
1-330-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.26
1-331-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.30
1-332-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.46
1-333-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.12
1-334-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.44
1-335-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.20
1-336-98b	167-100	1	0	0	0	0	2	0	0	2.3	7.72	10.68	13.71	0.30
1-337-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.34
1-338-98b	167-100	1	0	0	0	4	4	6	0	1.69	5.28	13.42	13.97	0.80
1-339-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.32
1-340-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.48
1-341-98b	167-100	1	0	0	0	4	2	2	0	1.42	2.88	10.68	11.69	0.24
1-342-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.16
1-343-98b	167-100	1	0	0	0	0	2	2	0	2.01	15.55	12.99	22.64	1.16
1-344-98b	167-100	1	1	0	0	2	2	2	0	1.95	13.59	12.71	14.61	0.50
1-345-98b	167-100	1	0	0	0	0	2	1	0	3.2	17.08	11.99	17.18	0.44
1-346-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.18
1-347-98b	167-100	1	0	0	0	0	2	2	0	4	14.47	15.01	24.65	1.44
1-348-98b	167-100	1	1	3	2	6	4	2	0	2.58	10.33	19.61	26.65	1.16
1-349-98b	167-100	1	0	0	0	0	2	6	0	3.32	15.02	13.84	13.92	0.92
1-350-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.60
1-351-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.92
1-352-98b	167-100	1	0	0	0	2	2	6	0	3.1	11.61	19.86	16.87	1.40
1-353-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.32

1-354-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.78
1-355-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.36
1-356-98b	167-100	1	0	0	0	3	2	3	0	5.42	20.22	21.08	31.15	3.66
1-357-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.74
1-358-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.54
1-359-98b	167-100	1	0	0	0	2	2	2	0	3.82	8.73	20.24	17.49	1.54
1-360-98b	167-100	1	0	0	0	2	2	2	0	2.38	7.08	12.46	13.23	0.36
1-361-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.64
1-362-98b	167-100	1	0	0	0	2	4	2	0	4.44	9.6	19.84	15.73	1.20
1-363-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.42
1-364-98b	167-100	1	0	0	0	6	0	0	0	2.7	7.87	14.36	10.33	0.42
1-365-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.28
1-366-98b	167-100	1	0	0	0	2	2	2	0	1.38	4.52	12.12	9.82	0.20
1-367-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.48
1-368-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.34
1-369-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.24
1-370-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.24
1-371-98b	167-100	1	0	0	0	0	2	2	0	1.79	6.44	11.03	14.2	0.28
1-372-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.80
1-373-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.72
1-374-98b	167-100	1	0	0	0	6	0	0	0	1.17	6.62	11.18	9.25	0.24
1-375-98b	167-100	1	0	0	0	2	2	3	0	4.16	14.2	15.75	14.86	1.10
1-376-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	2.28
1-377-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.46
1-378-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.22
1-379-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.32
1-380-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.38
1-381-98b	167-100	1	0	0	0	6	0	0	0	0.74	7.61	8.7	9.42	0.12
1-382-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.26
1-383-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.20
1-384-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.22
1-385-98b	167-100	1	0	0	0	4	2	2	0	3.02	8.67	11.52	13.6	0.74
1-386-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.42

1-387-98b	167-100	1	0	0	0	3	2	3	0	3.88	18.89	12.99	18.87	1.00
1-388-98b	167-100	1	1	0	2	2	4	2	0	2.11	5.32	11.03	8.89	0.20
1-389-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.52
1-390-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.02
1-391-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.60
1-392-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.52
1-393-98b	167-100	1	0	0	0	6	0	0	0	5.77	8.85	9.89	11.29	0.76
1-394-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.32
1-395-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.94
1-396-98b	167-100	1	1	0	2	6	4	2	0	3.76	17.62	16.26	24.47	2.24
1-397-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	2.56
1-398-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.76
1-399-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.28
1-400-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.28
1-401-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.50
1-402-98b	167-100	1	0	0	2	6	2	0	0	1.91	4.41	11.78	16.55	0.74
1-403-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.70
1-404-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.48
1-405-98b	167-100	1	0	0	0	3	2	2	0	3.6	14.92	18.28	19.33	1.84
1-406-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.36
1-407-98b	167-100	1	0	0	0	6	2	2	0	1.08	9.36	11.18	13.12	0.26
1-408-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.30
1-409-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.22
1-410-98b	167-100	1	0	0	0	6	2	3	0	2.44	12.03	9.88	13.75	0.52
1-411-98b	167-100	1	0	0	0	6	0	0	0	1.54	6.57	7.97	13.51	0.20
1-412-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.44
1-413-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.44
1-414-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	2.62
1-415-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-416-98b	167-100	1	0	0	0	6	0	0	0	4.06	6.23	17.6	12.59	0.90
1-417-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.52
1-418-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	1.16
1-419-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	1.34

1-420-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.46
1-421-98b	167-100	1	1	0	0	6	4	2	0	2.79	8.04	10.24	18.36	0.58
1-422-98b	167-100	1	1	0	0	2	2	2	0	1.82	5.2	12.35	9.69	0.44
1-423-98b	167-100	1	1	0	0	4	4	3	0	2.27	10.23	23.22	15.48	1.10
1-424-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.58
1-425-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.40
1-426-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.30
1-427-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.24
1-428-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.72
1-429-98b	167-100	1	1	0	0	3	4	2	0	9.59	23.32	15.98	24.83	2.66
1-430-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.36
1-431-98b	167-100	1	1	0	0	0	4	2	0	3.43	11.52	13.48	11.83	0.44
1-432-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.20
1-433-98b	167-100	1	0	0	0	6	2	2	0	1.6	6.85	10.6	11.65	0.28
1-434-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.14
1-435-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.22
1-436-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.14
1-437-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.22
1-438-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.34
1-439-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.40
1-440-98b	167-100	1	0	0	0	6	4	6	0	0.67	7.13	8.02	14.09	0.22
1-441-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.20
1-442-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.50
1-443-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.16
1-444-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.08
1-445-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.38
1-446-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.22
1-447-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.46
1-448-98b	167-100	3	0	0	0	0	0	0	0	0	0	0	0	0.18
1-449-98b	167-100	2	0	0	0	0	0	0	0	0	0	0	0	0.12
1-001-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.20
1-002-30b	180-90	1	0	0	0	6	2	2	0	2.06	8.07	11.47	12.01	0.44
1-003-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.66

1-004-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.26
1-005-30b	180-90	1	0	0	0	3	4	2	0	2.58	9.69	12.47	11.39	0.36
1-006-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.64
1-007-30b	180-90	1	0	0	0	0	4	2	0	4.33	8.18	14.48	10.28	0.50
1-008-30b	180-90	1	0	0	0	6	4	2	0	1.61	9.05	13.44	16.34	0.58
1-009-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.36
1-010-30b	180-90	1	0	0	0	0	4	1	0	2.54	11.14	13.87	12.65	0.44
1-011-30b	180-90	1	1	0	0	3	4	0	0	1.11	8.08	12.25	14.91	0.48
1-012-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.72
1-013-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-014-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.62
1-015-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-016-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.52
1-017-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-018-30b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.46
1-019-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.44
1-020-30b	180-90	1	0	0	2	6	3	0	0	1.72	10.32	14.65	19.06	0.60
1-021-30b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.40
1-022-30b	180-90	1	0	0	0	3	2	3	0	4.11	13.59	15.25	13.79	1.16
1-023-30b	180-90	1	0	0	0	4	2	6	0	2.18	17.67	13.75	20.69	0.82
1-024-30b	180-90	1	1	0	0	6	4	2	0	1.97	13.62	11.84	17.28	0.40
1-025-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.60
1-026-30b	180-90	1	1	0	0	3	4	2	0	2.34	3.4	14.46	12.93	0.44
1-027-30b	180-90	1	0	0	0	0	4	6	0	1	11.07	9.97	23.29	0.68
1-028-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.60
1-029-30b	180-90	1	0	0	0	6	4	2	0	3.62	11.63	12.77	16.99	0.66
1-030-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.70
1-031-30b	180-90	1	1	0	0	0	4	2	0	3.6	2.61	18.83	10.98	0.74
1-032-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.66
1-033-30b	180-90	1	0	0	0	6	2	2	0	1.02	8.67	11.69	9.42	0.24
1-034-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.46
1-035-30b	180-90	1	1	0	0	3	4	2	0	1.24	6.17	11.79	16.2	0.56
1-036-20b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.98

1-037-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.34
1-038-30b	180-90	1	0	0	0	2	2	6	0	1.4	8.91	14.2	14.56	0.90
1-039-30b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.46
1-040-30b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	1.14
1-041-30b	180-90	1	1	0	0	2	2	2	0	1.4	3.45	19.15	16.13	0.82
1-042-30b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.74
1-043-30b	180-90	1	0	0	0	6	4	2	0	2.82	14.15	14.89	12.88	1.06
1-044-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.86
1-045-30b	180-90	1	0	0	0	2	2	2	0	3.7	13.18	14.97	14.37	0.90
1-046-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.98
1-047-30b	180-90	1	0	0	0	2	4	6	0	0	0	14.1	18.78	0.58
1-048-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.40
1-049-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.42
1-050-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.34
1-051-30b	180-90	1	0	0	0	3	4	2	0	2.17	9.55	17.24	17.84	0.98
1-052-30b	180-90	1	0	0	0	0	2	2	0	1.87	6.58	18.2	13.49	0.74
1-053-30b	180-90	1	1	1	0	2	4	2	0	1.72	8.77	15.19	27.81	0.90
1-054-30b	180-90	1	0	0	0	6	4	3	0	4.17	10.86	14.75	19.4	0.74
1-055-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.02
1-056-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.02
1-057-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-058-30b	180-90	1	1	0	0	6	2	3	0	3.83	19.2	11.48	20.63	1.04
1-059-30b	180-90	1	1	0	0	0	4	3	0	3.97	17.76	13.63	18.95	1.12
1-060-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.08
1-061-30b	180-90	1	0	0	0	6	3	2	0	2.28	4.53	27.38	9.09	1.36
1-062-30b	180-90	1	0	0	0	6	2	2	0	3.17	14.37	10.89	20.87	0.76
1-063-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.88
1-064-30b	180-90	1	1	0	0	2	3	2	0	2.19	9.43	14.46	14.93	1.02
1-065-30b	180-90	1	0	0	0	6	2	0	0	4.86	7.65	19.23	12.57	1.26
1-066-30b	180-90	1	1	0	0	3	4	2	0	4.44	17.38	13.56	25.24	1.58
1-067-30b	180-90	1	0	0	2	6	4	3	0	8.21	9.55	22.09	10.93	1.56
1-068-30b	180-90	1	1	0	0	3	2	6	0	0.78	13.7	13.8	19.77	0.90
1-069-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.54

1-070-30b	180-90	1	1	0	0	5	4	2	0	1.79	8.33	20.87	24.68	3.14
1-071-30b	180-90	1	1	0	0	4	4	2	0	2.68	8.72	14.74	20.32	1.36
1-072-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.48
1-073-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.96
1-074-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.32
1-075-30b	180-90	1	0	0	0	0	2	2	0	4.64	6.92	22.6	14.3	1.44
1-076-30b	180-90	1	0	0	0	3	2	2	0	3.23	17.11	15.59	23.66	1.30
1-077-30b	180-90	1	0	0	0	2	4	6	0	2.31	24.01	17.92	23.61	1.34
1-078-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.46
1-079-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.02
1-080-30b	180-90	1	1	0	0	3	2	2	0	1.55	8.76	19.77	18.02	1.66
1-081-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.22
1-082-30b	180-90	1	0	0	0	2	2	2	0	3.03	11.6	22.35	22.62	1.58
1-083-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.00
1-084-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.18
1-085-30b	180-90	1	0	0	0	2	2	2	0	4.52	8.46	16.66	20.4	1.90
1-086-30b	180-90	1	1	0	0	2	2	3	0	3.31	10.34	25.83	19.44	1.96
1-087-30b	180-90	1	0	0	0	2	2	2	0	1.74	10.53	18.16	19	1.28
1-088-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.30
1-089-30b	180-90	1	1	0	0	5	4	3	0	4.13	15.97	17.42	24.33	2.54
1-090-30b	180-90	1	1	0	0	3	4	2	0	2.71	13.15	18.13	22.37	1.10
1-091-30b	180-90	1	1	0	0	3	4	3	0	3.52	15.86	19.56	18.84	1.60
1-092-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.94
1-093-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.48
1-094-30b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	1.72
1-095-30b	180-90	1	1	3	2	6	4	6	0	1.96	8.11	21.51	23.61	1.54
1-096-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.96
1-097-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.26
1-098-30b	180-90	1	1	0	0	2	4	2	0	3.28	20.26	16.65	30.88	2.72
1-099-30b	180-90	1	1	0	0	0	2	3	0	3.17	15.71	16.6	19.8	1.12
1-100-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.78
1-101-30b	180-90	1	1	0	0	4	4	3	0	3.18	16.56	23.15	18.83	2.22
1-102-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.82

1-103-30b	180-90	1	1	0	2	2	4	2	0	3.75	18.31	15.99	20.93	1.52
1-104-30b	180-90	1	0	0	0	6	2	3	0	2.67	14.08	22.23	18.83	1.52
1-105-30b	180-90	1	1	3	0	4	4	2	0	5.88	13.44	19.89	26.68	2.82
1-106-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	3.76
1-107-30b	180-90	1	0	0	0	3	2	2	0	5.29	9.9	20.65	18.59	1.32
1-108-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	4.78
1-109-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.20
1-110-30b	180-90	1	0	0	0	2	2	2	0	5.85	12.62	20.98	13.91	1.72
1-111-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.42
1-112-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.00
1-113-30b	180-90	1	0	0	0	2	2	2	0	3.87	18.77	18.66	25.91	3.06
1-114-30b	180-90	1	0	0	0	6	4	2	0	3.45	9.86	25.42	17.26	1.56
1-115-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.48
1-116-30b	180-90	1	0	0	0	3	2	6	0	1.66	13.18	21.08	21.7	2.56
1-117-30b	180-90	1	0	0	2	2	2	2	0	4.71	13.02	20.37	24.78	2.40
1-118-30b	180-90	1	0	0	0	6	2	3	0	4.77	24.22	18.6	36.45	4.00
1-119-30b	180-90	1	1	0	1	0	4	2	0	2.76	6.53	31.96	14.1	3.24
1-120-30b	180-90	1	0	0	0	0	2	2	0	2.45	15.73	17.69	30.04	1.98
1-121-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	3.02
1-122-30b	180-90	1	1	0	2	3	4	3	0	3.44	16.71	23.14	23.5	2.46
1-123-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	3.52
1-124-30b	180-90	1	1	0	0	3	4	2	0	9.53	22.47	36.66	30.41	8.02
1-125-30b	180-90	1	1	0	0	2	4	2	0	6.21	29.01	12.73	33.05	2.78
1-126-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.92
1-127-30b	180-90	1	1	3	0	3	4	2	0	3.11	19.27	24.61	23.78	3.10
1-128-30b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	3.52
1-129-30b	180-90	1	0	0	0	2	2	2	0	5.31	24.58	18.88	28.85	3.72
1-130-30b	180-90	1	1	0	0	3	4	2	0	4.56	17.87	21.83	29.22	3.16
1-131-30b	180-90	1	1	0	0	3	2	2	0	4.35	23.23	20.45	25.38	3.06
1-132-30b	180-90	1	0	0	0	3	2	2	0	1.95	3.76	31.74	21.41	3.30
1-133-30b	180-90	1	1	3	0	3	4	3	0	7.04	28.33	22.3	36.89	4.44
1-134-30b	180-90	1	0	0	0	3	2	6	0	1.5	21.95	18.72	26.51	2.26
1-135-30b	180-90	1	1	3	0	6	4	2	0	4.93	17.71	19.11	30.87	3.20

1-136-30b	180-90	1	0	0	0	3	4	2	0	8.84	16.54	21.78	19.62	4.18
1-137-30b	180-90	1	1	3	0	5	4	3	0	3.44	20.79	27.86	39.72	7.52
1-138-30b	180-90	1	1	3	2	3	4	2	0	5.93	13.92	28.03	34.29	7.08
1-139-30b	180-90	1	1	3	0	5	4	2	0	1.64	10.14	24.31	31.31	4.50
1-140-30b	180-90	1	1	0	0	3	4	2	0	1	18.32	26.5	33.75	4.20
1-141-30b	180-90	1	1	0	0	4	4	2	0	3.49	18.8	29.64	21.94	4.88
1-142-30b	180-90	1	0	3	0	3	4	3	0	4.3	11.26	34.22	34.92	7.28
1-143-30b	180-90	1	0	3	0	2	2	3	0	8.93	39.76	26.79	39.6	8.90
1-144-30b	180-90	1	0	3	0	3	4	2	0	3.87	13.09	24.38	36.43	3.90
1-145-30b	180-90	1	0	0	0	3	2	6	0	3.03	7.78	24.13	20.77	1.94
1-146-30b	180-90	1	0	0	0	2	2	3	0	8.81	23.76	24.64	28.14	6.70
1-147-30b	180-90	1	1	3	0	3	4	3	0	4.16	9.45	28.87	31.04	2.36
1-148-30b	180-90	1	1	3	0	2	2	2	0	1.96	8.26	27.35	22.28	3.12
1-149-30b	180-90	1	1	0	0	3	4	2	0	2.03	6.72	22.75	29	1.90
1-150-30b	180-90	1	1	0	0	3	4	3	0	5.44	25.04	18.27	27.81	3.86
1-151-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.46
1-152-30b	180-90	1	1	0	0	5	4	2	0	2.85	11.17	17.52	34.1	3.42
1-153-30b	180-90	1	0	0	0	6	2	2	0	7.56	7.78	22.18	20.05	3.64
1-154-30b	180-90	1	0	0	0	3	2	3	0	7.59	20.88	22.31	30.87	5.02
1-155-30b	180-90	1	1	3	0	3	4	2	0	10	17.56	35.26	29.22	5.90
1-156-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	3.28
1-157-30b	180-90	1	0	3	0	2	2	2	0	3.66	20.26	32.28	25.3	6.32
1-158-30b	180-90	1	1	3	0	0	4	4	0	4.65	14.22	19.83	33.67	2.88
1-159-30b	180-90	1	1	3	1	0	4	2	0	4.08	24.83	33	45.47	8.06
1-160-30b	180-90	1	0	3	0	3	3	6	0	0	0	29.09	22.28	7.10
1-161-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.44
1-162-30b	180-90	1	0	3	0	5	2	2	0	2.72	10.08	21.11	18.44	3.44
1-163-30b	180-90	1	1	3	0	4	4	2	0	2.62	17.63	40.06	33.68	8.52
1-164-30b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	17.22
1-165-30b	180-90	1	1	3	0	3	4	2	0	4.57	19.95	30.59	28.85	5.36
1-166-30b	180-90	1	0	0	0	2	2	2	0	7.57	16.72	30.21	26.61	4.42
1-167-30b	180-90	1	1	3	0	3	4	2	0	5.35	16.55	37	33.41	8.64
1-168-30b	180-90	1	1	3	1	3	4	2	0	4.4	11.11	40.8	37.2	11.84

1-169-30b	180-90	1	0	0	0	3	2	2	0	5.42	20.47	34.62	29.37	5.82
1-170-30b	180-90	1	1	3	0	5	4	2	0	6.43	17.98	40.57	22.55	6.64
1-171-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	4.54
1-172-30b	180-90	1	1	3	2	4	4	2	0	3.52	12.13	55.57	22.27	10.50
1-173-30b	180-90	1	1	0	2	6	4	2	0	5.51	21.09	28.76	36	7.42
1-174-30b	180-90	1	1	3	0	4	4	2	0	8.19	20.55	38.72	38.11	7.72
1-175-30b	180-90	1	1	0	1	0	3	0	0	9.53	51.37	22.06	51.25	9.42
1-176-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	6.84
1-177-30b	180-90	1	1	3	2	3	4	3	0	7.2	25.59	40.78	39.9	12.42
1-178-30b	180-90	1	1	3	0	5	4	2	0	7.25	16.55	33.49	40.54	6.42
1-179-30b	180-90	1	1	3	2	4	4	2	0	4.39	10.15	37.54	40.96	7.52
1-180-30b	180-90	1	0	3	0	2	2	3	0	6.71	20.36	37.37	25.83	7.46
1-181-30b	180-90	1	1	3	0	4	4	2	0	1.9	15.89	26.81	28.93	5.48
1-182-30b	180-90	1	1	3	1	5	4	3	0	6.37	29.71	31.98	52.39	11.92
1-183-30b	180-90	1	1	3	0	5	4	2	0	2.53	9.09	38.5	35.08	9.26
1-184-30b	180-90	1	0	3	2	5	4	6	0	0	0	56.75	62.94	59.98
1-185-30b	180-90	1	1	3	0	5	2	3	0	14.25	68.67	49.75	74.42	44.30
1-186-30b	180-90	1	1	2	0	3	4	2	0	15.21	29.16	67.85	63.65	67.88
1-187-30b	180-90	1	1	2	0	3	4	2	0	17.84	34.19	58.5	70.95	75.60
1-188-30b	180-90	1	0	3	2	5	2	6	0	0	0	56.06	77.98	82.46
1-189-30b	180-90	1	1	1	2	4	4	3	0	14.95	63.46	60.77	80.51	70.98
1-190-30b	180-90	1	1	3	0	4	4	2	0	7.64	30.55	37.2	52.25	17.72
1-191-30b	180-90	1	0	3	2	0	2	1	0	7.29	18.96	54.92	49.67	40.40
1-192-30b	180-90	1	1	1	0	3	4	3	0	6.45	17.07	34.67	53.47	13.80
1-193-30b	180-90	1	1	3	0	5	4	3	0	11	27.74	72.54	33.26	29.66
1-194-30b	180-90	1	1	3	2	6	4	1	0	10.75	28.38	36.44	30.84	14.36
1-195-30b	180-90	1	0	3	0	5	2	3	0	7.57	37.95	43.7	61.21	21.86
1-196-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	12.86
1-197-30b	180-90	1	0	3	0	3	2	2	0	5.36	12.9	50.43	44.54	18.18
1-198-30b	180-90	1	1	1	2	6	4	2	0	4.02	19.88	28.17	68.28	14.14
1-199-30b	180-90	1	0	3	2	2	4	2	0	9.34	31.67	58.07	39.79	28.18
1-200-30b	180-90	1	1	3	0	3	4	3	0	11.89	41.87	41.64	42.66	20.42
1-201-30b	180-90	1	1	2	2	2	4	2	0	11.62	29.88	38.3	62.23	25.34

1-202-30b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	39.10
1-203-30b	180-90	1	1	3	2	4	4	2	0	5.53	28.73	37.24	42.66	14.08
1-204-30b	180-90	1	1	3	2	3	2	2	0	13.76	37.39	39.98	60.19	43.42
1-205-30b	180-90	1	0	3	0	4	4	6	0	5.48	20.96	52.95	74.06	40.96
1-206-30b	180-90	1	1	3	0	5	0	3	0	8.15	19.52	68.43	27.12	38.08
1-207-30b	180-90	1	1	1	0	5	4	3	0	12.36	39.08	60.35	101.5	94.68
1-001-31b	190-100	1	1	3	1	2	2	6	0	5.12	30.59	66.87	55.29	47.96
1-002-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	28.06
1-003-31b	190-100	1	1	1	0	4	4	2	0	9.97	31.93	53.29	79.38	41.50
1-004-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	10.44
1-005-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	30.86
1-006-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	23.08
1-007-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	13.42
1-008-31b	190-100	1	1	3	0	6	4	2	0	4.23	18.11	46.04	38.94	7.90
1-009-31b	190-100	1	1	3	0	4	4	2	0	8.32	38.1	25.23	45.26	9.94
1-010-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	27.18
1-011-31b	190-100	1	0	3	0	2	2	2	0	5.17	15.02	28.62	22.71	4.18
1-012-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	15.78
1-013-31b	190-100	1	1	3	0	3	4	2	0	3.63	11.9	63.86	31.73	10.76
1-014-31b	190-100	1	0	0	0	0	4	2	0	4.18	7.6	40.48	18.69	4.18
1-015-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	4.34
1-016-31b	190-100	1	1	3	2	2	4	3	0	9.97	40.39	33.98	61.82	17.38
1-017-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	5.90
1-018-31b	190-100	1	1	3	2	5	4	1	0	10.21	52.79	37.11	56.69	21.80
1-019-31b	190-100	1	1	3	2	6	4	3	0	5.12	17.07	31.31	38.14	8.00
1-020-31b	190-100	1	1	3	0	3	2	3	0	14.23	37.61	53.56	53.34	43.12
1-021-31b	190-100	1	1	3	2	2	4	6	0	3.61	8.88	28.44	47.31	5.86
1-022-31b	190-100	1	1	3	2	2	4	2	0	4.27	19.07	45.46	38.09	12.10
1-023-31b	190-100	1	1	3	0	6	4	2	0	6.19	35.24	29.03	45.63	10.56
1-024-31b	190-100	1	1	3	2	3	4	3	0	3.48	18.83	23.28	35.93	5.34
1-025-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	2.12
1-026-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	9.68
1-027-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	4.52

1-028-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	11.34
1-029-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	4.58
1-030-31b	190-100	1	1	3	2	4	4	2	0	5.62	17.52	37.45	48.23	9.56
1-031-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	2.72
1-032-31b	190-100	1	1	3	2	6	4	6	0	1.77	15.27	27.71	46.96	5.44
1-033-31b	190-100	1	1	3	0	6	4	3	0	3.96	17.97	34.3	37.68	7.00
1-034-31b	190-100	1	1	0	0	6	0	2	0	5.96	21.8	21.95	39.72	5.70
1-035-31b	190-100	1	1	3	0	3	4	2	0	5.92	34.72	21.95	36.45	6.64
1-036-31b	190-100	1	0	3	0	6	2	3	0	4.77	27.85	32.49	41.22	6.30
1-037-31b	190-100	1	1	3	0	2	4	2	0	5.03	11.04	33.51	19.18	3.06
1-038-31b	190-100	1	1	3	0	3	2	2	0	6.32	13.51	39.48	36.09	9.96
1-039-31b	190-100	1	1	3	0	4	4	2	0	3.36	10.84	46.45	25.8	7.02
1-040-31b	190-100	1	1	3	0	2	2	2	0	7.4	25.8	36.98	44.98	13.28
1-041-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	3.84
1-042-31b	190-100	1	1	3	0	6	4	2	0	7	33.87	35.56	41	11.00
1-043-31b	190-100	1	0	0	2	6	2	6	0	3.33	5.9	30.33	30.6	3.34
1-044-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	2.62
1-045-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	2.04
1-046-31b	190-100	1	0	0	0	6	2	2	0	1.28	5.45	15.68	24.62	1.32
1-047-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	4.74
1-048-31b	190-100	1	0	0	0	2	2	2	0	2.25	11.34	25.02	26.4	3.34
1-049-31b	190-100	3	0	0	0	0	0	0	0	0	0	0	0	3.40
1-050-31b	190-100	1	1	0	0	5	4	2	0	3.03	11.8	14.38	32.13	2.40
1-051-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	3.00
1-052-31b	190-100	1	0	0	0	0	4	2	0	5.41	30.34	15.62	30.13	2.54
1-053-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	1.34
1-054-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	6.92
1-055-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	3.56
1-056-31b	190-100	1	1	0	0	2	4	2	0	4.1	17.36	19.64	23.4	1.70
1-057-31b	190-100	1	0	3	0	3	2	3	0	4.18	20.4	26.45	28.55	5.52
1-058-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	3.80
1-059-31b	190-100	1	0	0	0	3	4	7	0	0	0	34.6	29.26	3.36
1-060-31b	190-100	1	0	1	0	2	2	2	0	3.24	13.59	22.4	36.49	4.16

1-061-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	1.62
1-062-31b	190-100	1	1	3	2	3	2	2	0	5.65	24.27	32.37	36.42	9.92
1-063-31b	190-100	1	1	3	0	3	4	3	0	4.27	13.84	29.97	21.94	4.24
1-064-31b	190-100	1	1	3	0	0	4	6	0	1.98	13.41	25.06	20.67	1.92
1-065-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	2.06
1-066-31b	190-100	1	0	0	2	0	2	6	0	3.88	10.26	21.46	25.35	2.52
1-067-31b	190-100	1	0	0	0	2	2	2	0	4.72	16.98	13.94	21.42	1.26
1-068-31b	190-100	1	1	3	0	3	2	2	0	1.5	4.21	24.07	17.85	1.74
1-069-31b	190-100	1	1	0	0	3	4	3	0	3.47	9.83	22.32	17.96	1.64
1-070-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.98
1-071-31b	190-100	1	0	0	0	6	2	3	0	2.53	17.43	10.76	17.47	0.52
1-072-31b	190-100	3	0	0	0	0	0	0	0	0	0	0	0	1.04
1-073-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-074-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	1.42
1-075-31b	190-100	1	0	0	0	2	4	6	0	2.3	10.52	13.46	22.27	0.82
1-076-31b	190-100	1	1	0	0	2	4	3	0	4.44	24.29	27.12	27.03	4.38
1-077-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	3.54
1-078-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	1.48
1-079-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	1.26
1-080-31b	190-100	1	0	0	0	3	4	2	0	4	7.82	20.57	14.9	1.40
1-081-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	1.40
1-082-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.72
1-083-31b	190-100	1	0	0	0	4	2	3	0	9.43	27.98	16.8	32.85	5.50
1-084-31b	190-100	1	1	0	0	3	2	2	0	1.33	6.68	19.3	18.98	1.02
1-085-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.50
1-086-31b	190-100	1	0	0	0	2	2	2	0	2.91	10.77	20.25	21.9	1.36
1-087-31b	190-100	1	0	0	0	3	2	6	0	3.78	14.52	16.1	22.03	1.46
1-088-31b	190-100	1	1	3	0	3	2	2	0	1.42	10.69	32.26	19.43	2.44
1-089-31b	190-100	1	1	3	0	2	4	2	0	1.57	5.67	22.54	13.4	0.74
1-090-31b	190-100	1	0	0	0	6	2	3	0	3.2	27.26	16.31	27.24	1.80
1-091-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	1.74
1-092-31b	190-100	1	1	3	0	3	4	2	0	6.57	18.95	20.44	24.27	2.76
1-093-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	3.32

1-094-31b	190-100	1	0	0	0	0	4	6	0	0.63	3.04	13.63	17.07	0.46
1-095-31b	190-100	1	0	0	0	0	2	6	0	3.36	14.24	14.92	22.72	1.30
1-096-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.86
1-097-31b	190-100	1	0	0	0	2	4	0	0	2.46	13.48	18.97	16.64	1.90
1-098-31b	190-100	1	0	0	0	6	2	2	0	3.05	9.25	22.1	23.07	2.10
1-099-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	1.64
1-100-31b	190-100	1	0	0	0	6	2	2	0	6.82	17.47	14.44	25.79	1.26
1-101-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	1.06
1-102-31b	190-100	1	0	0	0	6	2	6	0	3.26	6.65	17.38	17.57	1.12
1-103-31b	190-100	1	0	0	0	0	4	2	0	3.2	15.87	14.91	17.89	0.78
1-104-31b	190-100	1	1	3	0	2	4	2	0	2.8	6.75	22.88	23.72	1.76
1-105-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.60
1-106-31b	190-100	1	0	0	2	3	4	6	0	1.18	5.63	15.83	15.58	0.78
1-107-31b	190-100	1	0	0	0	3	4	6	0	3.08	12.99	18.57	16.59	1.26
1-108-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.86
1-109-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.86
1-110-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.70
1-111-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.40
1-112-31b	190-100	1	0	0	0	3	4	6	0	1.28	4.63	17.08	14.97	0.82
1-113-31b	190-100	1	1	0	0	2	4	2	0	5.84	15.58	19.51	18.72	1.90
1-114-31b	190-100	1	0	0	0	6	2	2	0	1.77	6.76	16.61	18.77	1.20
1-115-31b	190-100	1	0	0	0	0	4	6	0	5.5	13.51	22.31	19.76	1.70
1-116-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.96
1-117-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.90
1-118-31b	190-100	1	0	0	0	6	4	0	0	3.3	15.83	12.41	22.55	1.42
1-119-31b	190-100	1	0	0	0	2	2	2	0	2.39	8.85	14.1	16.16	0.88
1-120-31b	190-100	1	1	0	0	3	4	6	0	1.1	6.74	10.6	22.6	0.66
1-121-31b	190-100	1	0	0	0	3	3	6	0	2.3	5.78	15.25	17.67	0.94
1-122-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-123-31b	190-100	1	1	0	2	6	4	1	0	4.41	8.87	17.67	13.25	1.08
1-124-31b	190-100	1	0	0	0	4	2	6	0	1.32	5.53	13.01	18.24	0.92
1-125-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.70
1-126-31b	190-100	0	0	0	0	0	0	0	0	0	0	0	0	0.68

1-127-31b	190-100	1	0	0	0	3	4	6	0	3.04	13.04	12.41	12.72	0.52
1-128-31b	190-100	1	0	0	0	4	4	2	0	2.05	4.9	17.73	20.87	0.92
1-129-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-130-31b	190-100	1	0	0	0	3	2	6	0	1.42	12.58	13.69	19.95	1.06
1-131-31b	190-100	1	1	3	0	6	4	2	0	2.72	10.78	19.55	22.47	1.28
1-132-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.82
1-133-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.40
1-134-31b	190-100	1	0	0	0	2	2	2	0	3.94	11	11.69	14.4	0.72
1-135-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.52
1-136-31b	190-100	1	0	0	0	6	2	0	0	1.08	4.4	12.36	15.57	0.32
1-137-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.72
1-138-31b	190-100	3	0	0	0	0	0	0	0	0	0	0	0	0.62
1-139-31b	190-100	1	1	0	2	2	4	1	0	2.63	7.52	14.97	12.33	0.48
1-140-31b	190-100	1	1	0	0	2	4	2	0	3.03	9.47	10.73	15.21	0.48
1-141-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.34
1-142-31b	190-100	1	0	0	0	4	2	6	0	2.05	6.54	11.31	12.81	0.36
1-143-31b	190-100	1	0	0	0	0	4	6	0	2.13	9.68	11.38	14.46	0.38
1-144-31b	190-100	1	0	0	0	6	2	6	0	2.34	14.41	11.59	18.78	0.46
1-145-31b	190-100	1	0	0	0	3	2	2	0	2.88	10.04	18.4	16.43	1.06
1-146-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.76
1-147-31b	190-100	1	0	0	0	6	2	2	0	1.82	6.43	10.67	14.81	0.32
1-148-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.42
1-149-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.80
1-150-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.52
1-151-31b	190-100	1	1	0	0	6	4	2	0	2.6	7.35	10.53	16.63	0.58
1-152-31b	190-100	1	0	0	0	2	2	6	0	1.04	6.49	13.98	9.41	0.28
1-153-31b	190-100	1	0	0	0	6	4	6	0	1.16	3.98	14.15	10.6	0.56
1-154-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.42
1-155-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.26
1-156-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.26
1-157-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.30
1-158-31b	190-100	1	1	0	0	6	4	2	0	1.3	4.73	8.78	7.94	0.10
1-159-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.66

1-160-31b	190-100	3	0	0	0	0	0	0	0	0	0	0	0	0.36
1-161-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.18
1-162-31b	190-100	1	0	0	0	6	2	2	0	1.93	8.64	11.85	11.4	0.34
1-163-31b	190-100	1	0	0	0	2	4	6	0	2.51	7.34	14.38	9.09	0.32
1-164-31b	190-100	1	0	0	0	6	4	6	0	3.08	9.24	10.69	15.57	0.38
1-165-31b	190-100	1	0	0	0	3	2	2	0	3.53	8.36	10.4	13.53	0.60
1-166-31b	190-100	1	0	0	0	6	2	2	0	1.67	5.73	10.51	11.54	0.26
1-167-31b	190-100	1	0	0	0	6	2	2	0	2.63	11.96	11.42	17.45	0.56
1-168-31b	190-100	1	0	0	0	2	4	0	0	0.63	6.14	16.67	16.36	0.66
1-169-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.64
1-170-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.36
1-171-31b	190-100	1	0	0	0	6	4	6	0	0.92	3.36	10.77	12.89	0.30
1-172-31b	190-100	2	0	0	0	0	0	0	0	0	0	0	0	0.44
1-001-27b	180-90	1	0	0	0	2	4	6	0	1.36	6.64	9.83	9.86	0.22
1-002-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.16
1-003-27b	180-90	1	0	0	0	6	2	6	0	0.85	4.67	11.31	9.66	0.22
1-004-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.22
1-005-27b	180-90	1	0	0	0	6	2	6	0	1.39	3.26	12.85	8.15	0.22
1-006-27b	180-90	1	0	0	0	6	2	6	0	1.35	8.79	9.19	13.09	0.26
1-007-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.48
1-008-27b	180-90	1	1	0	0	2	4	2	0	2.08	8.92	10.85	10.96	0.26
1-009-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-010-27b	180-90	1	0	0	0	3	4	2	0	1.02	7.66	13.62	13.5	0.36
1-011-27b	180-90	1	0	0	0	2	4	6	0	1.96	5.7	17.68	12.53	0.70
1-012-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.38
1-013-27b	180-90	1	0	0	0	6	2	6	0	1.37	10.21	10.03	14.26	0.34
1-014-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.28
1-015-27b	180-90	1	0	0	0	3	2	6	0	0	0	16.8	17.72	0.88
1-016-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.46
1-017-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.24
1-018-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.44
1-019-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.48
1-020-27b	180-90	1	0	0	2	6	4	6	0	1.48	5.45	18.44	13.9	0.54

1-021-27b	180-90	1	0	0	0	3	2	6	0	0	0	28.6	11.36	0.88
1-022-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.36
1-023-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.42
1-024-27b	180-90	1	0	0	0	2	2	2	0	3.44	9.3	9.77	12.95	0.40
1-025-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.46
1-026-27b	180-90	1	0	0	0	2	2	2	0	2.39	6.76	9.81	13.91	0.44
1-027-27b	180-90	1	0	0	0	6	2	0	0	0.92	4.78	9.31	14.59	0.38
1-028-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.44
1-029-27b	180-90	1	0	0	0	6	4	6	0	1.54	10.09	10.31	13.74	0.26
1-030-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.42
1-031-27b	180-90	1	0	0	0	6	0	0	0	5.44	11.23	10.31	11.89	0.48
1-032-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-033-27b	180-90	1	1	0	0	2	4	2	0	2.8	13.45	8.99	14.08	0.38
1-034-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-035-27b	180-90	1	0	0	0	6	2	3	0	3.49	12.59	3.32	17.34	0.54
1-036-27b	180-90	1	0	0	0	2	2	2	0	2.76	8.68	17.77	12.7	0.64
1-037-27b	180-90	1	1	0	0	3	4	0	0	0.88	1.98	14.78	10.85	0.44
1-038-27b	180-90	1	0	0	0	3	2	6	0	1.34	8.95	12.02	11.68	0.50
1-039-27b	180-90	1	0	0	0	6	4	0	0	3.76	15.57	12.42	14.11	0.62
1-040-27b	180-90	1	1	0	0	2	4	2	0	1.08	4.5	13.84	12.01	0.38
1-041-27b	180-90	1	0	0	2	6	4	6	0	0.83	3.56	13.5	17.86	0.42
1-042-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.68
1-043-27b	180-90	1	0	0	0	6	2	2	0	2.23	13.78	9.22	16.01	0.46
1-044-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.48
1-045-27b	180-90	1	0	0	0	6	2	6	0	1.37	11.13	14.02	11.04	0.46
1-046-27b	180-90	1	1	0	2	6	4	2	0	1.92	17.67	9.25	17.55	0.42
1-047-27b	180-90	1	0	0	0	3	3	6	0	3.81	8.75	13.68	16.65	0.68
1-048-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.66
1-049-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.56
1-050-27b	180-90	1	0	0	2	6	4	2	0	2.61	9.01	12.95	18.73	0.80
1-051-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.52
1-052-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.84
1-053-27b	180-90	1	0	0	0	6	2	3	0	2.39	12.64	14.33	18.71	0.68

1-054-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.86
1-055-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.48
1-056-27b	180-90	1	0	0	0	6	4	6	0	3.35	15.88	15.25	16.67	0.86
1-057-27b	180-90	1	0	0	0	0	2	6	0	3.76	13.48	18.06	16.38	1.00
1-058-27b	180-90	1	1	0	0	4	2	2	0	3.1	7.05	22.49	13.34	1.18
1-059-27b	180-90	1	0	0	0	3	2	3	0	4.98	13.82	13.33	21.66	1.64
1-060-27b	180-90	1	0	0	0	6	2	6	0	1.28	4.77	11.8	20.19	0.62
1-061-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.44
1-062-27b	180-90	1	0	0	0	3	4	2	0	2.63	9.51	14.37	17.68	0.70
1-063-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.18
1-064-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.24
1-065-27b	180-90	1	0	0	0	3	2	6	0	1.85	9.98	13.1	18.21	1.18
1-066-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.38
1-067-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.82
1-068-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.64
1-069-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-070-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.92
1-071-27b	180-90	1	0	0	0	2	4	6	0	1.76	6.75	12.84	21.78	0.92
1-072-27b	180-90	1	1	0	0	2	4	3	0	1.39	9.05	17.85	12.33	0.52
1-073-27b	180-90	1	1	0	0	3	2	2	0	3.52	10.26	16.1	19.68	1.42
1-042-27b	180-90	1	0	0	0	6	2	6	0	3.53	14.94	11.38	23.65	1.20
1-075-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.42
1-076-27b	180-90	1	0	0	0	0	2	2	0	2.82	8.02	15.6	17.71	1.02
1-077-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-078-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.70
1-079-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.94
1-080-27b	180-90	1	0	0	0	3	2	6	0	1.28	17.34	22.61	37.48	2.10
1-081-27b	180-90	1	0	0	0	3	4	6	0	1.48	8.34	16.33	19.29	1.18
1-082-27b	180-90	1	0	0	0	6	2	6	0	2.37	8.94	14.49	20.51	0.80
1-083-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.80
1-084-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.58
1-085-27b	180-90	1	0	0	0	2	4	6	0	1.98	7.45	19.83	15.49	1.34
1-086-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.46

1-087-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-088-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.98
1-089-27b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	1.86
1-090-27b	180-90	1	1	0	0	6	4	2	0	4.27	12.51	13.99	18.47	0.98
1-091-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.80
1-092-27b	180-90	1	0	0	2	3	4	1	0	3.42	11.61	17.83	16.41	1.40
1-093-27b	180-90	1	0	0	0	6	4	6	0	4.01	18.83	16.49	21.51	1.54
1-094-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.28
1-095-27b	180-90	1	1	3	0	5	3	2	0	2.78	12.44	32.52	27.69	3.90
1-096-27b	180-90	1	0	0	0	6	4	2	0	2.34	7.04	10.78	15.36	0.42
1-097-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.22
1-098-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.70
1-099-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.06
1-100-27b	180-90	1	0	0	0	6	2	2	0	4.93	12.79	27.78	15.83	2.90
1-101-27b	180-90	1	0	0	0	6	4	6	0	1.87	14.65	24.06	20.98	2.66
1-102-27b	180-90	1	0	0	0	6	2	2	0	1.45	5.87	14.61	18.2	0.66
1-103-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.26
1-104-27b	180-90	1	0	0	0	3	4	6	0	0	0	20.02	21.84	1.50
1-105-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.94
1-106-27b	180-90	1	0	0	0	2	2	3	0	4.51	13.63	15.18	14.33	1.24
1-107-27b	180-90	1	1	0	0	2	4	2	0	2.89	11.27	16.09	21.71	1.00
1-108-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.58
1-109-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.12
1-110-27b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	0.90
1-111-27b	180-90	1	0	0	0	2	2	2	0	2.38	6.28	18.66	16.43	1.48
1-112-27b	180-90	1	0	0	0	6	4	2	0	3.79	11.49	22.53	17.91	1.50
1-113-27b	180-90	1	1	0	0	2	4	3	0	4.33	20.48	18.7	30.3	2.32
1-114-27b	180-90	1	0	0	2	3	4	6	0	2.43	11.78	15.17	22.36	1.26
1-115-27b	180-90	1	0	0	0	2	2	6	0	2.13	13.67	17.89	24.19	1.08
1-116-27b	180-90	1	1	0	0	3	2	2	0	3.1	11.47	19.45	13.9	0.98
1-117-27b	180-90	1	1	0	0	3	2	2	0	4.6	12.12	27.7	15.66	2.16
1-118-27b	180-90	1	1	1	0	2	4	3	0	7.29	21.02	14.23	22.5	1.88
1-119-27b	180-90	1	1	0	0	6	4	2	0	9.49	25.7	19.84	26.13	4.96

1-120-27b	180-90	1	0	0	0	2	2	2	0	4.26	15.44	16.67	15.49	1.30
1-121-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.16
1-122-27b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	4.34
1-123-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.50
1-124-27b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	1.98
1-125-27b	180-90	1	1	0	0	6	4	2	0	2	12.45	16	11.59	0.40
1-126-27b	180-90	1	0	0	0	6	2	2	0	4.1	28.3	14.79	28.47	2.04
1-127-27b	180-90	1	0	0	2	6	2	2	0	2.88	12.28	11.73	13.43	0.64
1-128-27b	180-90	1	0	0	0	3	4	2	0	5.64	13.4	15.43	19.97	1.28
1-129-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	0.42
1-130-27b	180-90	1	0	0	0	6	2	6	0	1.65	12.2	11.95	15.69	0.74
1-131-27b	180-90	1	0	0	0	2	2	2	0	8.35	16.03	22.73	16.15	2.32
1-132-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.22
1-133-27b	180-90	1	0	0	0	3	4	2	0	1.4	8.53	19.13	17.66	1.38
1-134-27b	180-90	1	1	3	0	3	2	3	0	3.43	15.39	31.44	22.74	3.26
1-135-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.72
1-136-27b	180-90	1	1	0	0	3	4	6	0	1.43	8.67	19.82	26.04	1.60
1-137-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.52
1-138-27b	180-90	1	0	0	0	2	2	6	0	3.55	12.13	21.79	15.98	1.64
1-139-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.66
1-140-27b	180-90	1	1	0	0	2	4	2	0	5.32	27.4	23.17	24.17	4.00
1-141-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.66
1-142-27b	180-90	1	0	0	0	6	2	0	0	4.22	13.7	16.85	22.43	1.54
1-143-27b	180-90	1	0	0	1	6	4	0	0	1.17	5.1	13.75	20.82	1.02
1-144-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.28
1-145-27b	180-90	1	0	0	0	6	2	2	0	3.59	18.96	16.4	28.33	2.22
1-146-27b	180-90	1	0	0	0	0	2	3	0	4.03	18.18	19.12	22.89	1.74
1-147-27b	180-90	1	0	0	0	0	2	2	0	4.54	10.4	16.27	23.17	1.38
1-148-27b	180-90	1	0	0	0	0	2	2	0	4.14	15.91	26.72	35.8	3.26
1-149-27b	180-90	1	0	0	0	6	2	3	0	3.51	18.1	20.27	25.15	2.08
1-150-27b	180-90	1	1	3	2	3	4	0	0	0	0	29.06	22.31	3.44
1-151-27b	180-90	1	1	3	0	3	4	2	0	2.66	7.7	36.09	27.02	3.88
1-152-27b	180-90	1	0	0	0	6	2	3	0	6.89	26.8	19.94	29.94	4.12

1-153-27b	180-90	1	1	0	0	2	4	6	0	2.76	10.91	20.79	21.43	1.52
1-154-27b	180-90	1	0	0	0	2	4	3	0	9.32	21.26	22.77	29.57	4.28
1-155-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.40
1-156-27b	180-90	1	0	0	1	6	2	6	0	3.14	13.95	26.49	19.77	2.88
1-157-27b	180-90	1	0	0	0	3	2	2	0	5.61	20.19	16.9	28.07	2.94
1-158-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	3.06
1-159-27b	180-90	1	0	0	0	3	2	2	0	7.32	9.72	31.83	19.93	4.00
1-160-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	4.40
1-161-27b	180-90	1	1	0	0	3	4	3	0	7.07	18.98	18.66	28.53	3.82
1-162-27b	180-90	1	1	0	0	6	4	2	0	3.39	19.54	21.28	39.76	3.48
1-163-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.38
1-164-27b	180-90	1	1	3	0	5	4	2	0	3.91	15.78	30.54	23.83	3.34
1-165-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	1.82
1-166-27b	180-90	1	0	0	0	6	2	2	0	3.22	21.11	22.8	38.45	2.90
1-167-27b	180-90	1	0	0	2	6	2	3	0	3.86	9.03	24.95	25.98	1.82
1-168-27b	180-90	1	0	0	0	3	2	2	0	4.02	11.22	21.08	34.44	3.30
1-169-27b	180-90	1	0	0	0	6	2	6	0	4.48	15.68	16.95	20.48	1.78
1-170-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.08
1-171-27b	180-90	1	0	0	0	6	4	6	0	4.01	9.29	21.26	32.4	3.96
1-172-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	9.12
1-173-27b	180-90	1	1	3	0	3	4	3	0	5.32	28.73	25.76	35.5	4.30
1-174-27b	180-90	0	0	0	0	0	0	0	0	0	0	0	0	2.98
1-175-27b	180-90	3	0	0	0	0	0	0	0	0	0	0	0	5.46
1-176-27b	180-90	1	1	0	0	5	2	3	0	5.78	19.33	20.02	30.23	4.26
1-177-27b	180-90	1	0	3	0	3	2	6	0	2.03	15.48	27.86	33.54	5.88
1-178-27b	180-90	1	0	3	0	3	4	6	0	9.51	19.1	29.27	33.86	7.20
1-179-27b	180-90	1	0	0	1	0	2	0	0	3.31	6.56	22.36	42.48	8.66
1-180-27b	180-90	1	1	3	0	6	4	2	0	5.75	19.21	33.92	36.07	7.70
1-181-27b	180-90	1	0	0	2	2	4	6	0	2.43	14	27.92	37.85	5.24
1-182-27b	180-90	1	0	0	0	6	4	6	0	8.4	23.98	31.34	23.94	5.36
1-183-27b	180-90	1	1	3	0	4	4	3	0	4.99	15.36	35.61	35.11	7.90
1-184-27b	180-90	1	1	1	2	2	4	2	0	5	12.43	26.16	49.55	5.40
1-185-27b	180-90	1	1	3	0	5	4	2	0	3.59	18.15	30.82	28.78	6.04

1-186-27b	180-90	1	1	3	0	4	4	2	0	4.47	18.64	42.87	27.74	6.42
1-187-27b	180-90	1	0	0	0	6	2	2	0	4.97	27.68	19.44	37.47	3.58
1-188-27b	180-90	1	1	3	2	3	4	2	0	2.71	6.01	43.96	20.44	6.38
1-189-27b	180-90	1	1	2	0	3	4	3	0	4.6	16.18	37.17	39.01	8.26
1-190-27b	180-90	1	1	3	0	3	4	3	0	4.23	14	25.2	35.15	3.92
1-191-27b	180-90	1	1	3	0	3	4	0	0	4.66	33.68	27.04	43.17	6.90
1-192-27b	180-90	1	0	0	0	6	4	0	0	2.87	12.08	28.59	27.73	3.04
1-193-27b	180-90	1	0	3	1	6	3	6	0	1.68	24.71	29.83	42.49	11.90
1-194-27b	180-90	1	1	1	0	4	4	2	0	1.95	11.37	25.06	34.58	4.86
1-195-27b	180-90	1	0	0	0	3	4	6	0	7.02	18.2	20.97	34.7	4.28
1-196-27b	180-90	1	0	0	0	2	2	3	0	3.14	12.27	26.92	23.53	2.34
1-197-27b	180-90	1	1	3	2	1	4	1	0	10.63	34.27	18.56	40.67	6.02
1-198-27b	180-90	1	1	0	0	3	4	2	0	4.12	20.53	27.21	27.89	3.46
1-199-27b	180-90	1	1	3	0	3	2	3	0	4.38	25.44	41.94	28.25	5.76
1-200-27b	180-90	1	0	3	0	2	2	2	0	4.34	13.89	25.82	42.54	7.54
1-201-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	3.82
1-202-27b	180-90	1	1	3	0	4	4	2	0	3.16	29.78	23.31	33.32	3.92
1-203-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	2.44
1-204-27b	180-90	1	0	2	0	5	4	6	0	1.8	19.72	41.94	55.34	16.64
1-205-27b	180-90	1	1	3	0	3	4	3	0	5.23	23.97	24.44	35.21	11.02
1-206-27b	180-90	1	1	3	0	3	4	3	0	12.05	50.68	36.14	62.15	17.36
1-207-27b	180-90	1	1	3	0	3	3	3	0	4.06	19.01	27.73	36.12	6.64
1-208-27b	180-90	1	1	0	0	3	4	2	0	3.31	14.88	28.77	19.31	3.18
1-209-27b	180-90	1	1	3	0	4	4	2	0	7.65	18.56	40.31	26.72	8.30
1-210-27b	180-90	1	1	3	2	3	2	1	0	7.36	39.28	27.44	40.14	8.00
1-211-27b	180-90	1	0	0	0	6	4	2	0	3.68	9.82	33.62	33.31	9.56
1-212-27b	180-90	1	1	3	0	3	4	3	0	4.1	24.41	26.44	31.74	4.64
1-213-27b	180-90	1	0	0	0	2	2	3	0	4.34	17.23	28.1	25.87	4.76
1-214-27b	180-90	1	0	3	0	4	4	6	0	4.08	19.19	26.09	49.09	6.98
1-215-27b	180-90	1	0	3	0	4	2	6	0	1.26	8.64	22.81	49.27	10.94
1-216-27b	180-90	1	1	3	0	2	4	2	0	8.42	20.66	34.26	30.73	8.86
1-217-27b	180-90	1	1	3	0	4	4	2	0	1.45	4.38	39.98	18.82	3.68
1-218-27b	180-90	1	0	3	0	5	4	6	0	3.31	10.54	39.45	28.41	6.02

1-219-27b	180-90	1	1	3	2	2	4	1	0	7.45	26.78	32.83	24.36	4.78
1-220-27b	180-90	1	0	3	0	3	4	6	0	6.52	39.57	26.38	54.45	14.86
1-221-27b	180-90	1	1	0	0	4	4	3	0	5.44	24.85	30.97	28.83	5.14
1-222-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	13.58
1-223-27b	180-90	1	0	0	2	6	2	2	0	2.71	10.34	19.15	28.91	3.12
1-224-27b	180-90	1	1	1	1	2	4	3	0	4.61	13.89	25.87	44.63	10.44
1-225-27b	180-90	1	1	0	0	6	2	0	0	3.8	14.07	22.32	21.04	3.26
1-226-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	6.06
1-227-27b	180-90	1	1	3	0	6	4	2	0	14.31	51.96	48.21	55.25	19.54
1-228-27b	180-90	1	1	3	2	3	4	3	0	7.22	22.41	43.3	55.55	24.60
1-229-27b	180-90	1	1	2	0	5	2	3	0	9.88	39.8	44.69	49.48	25.22
1-230-27b	180-90	1	1	3	0	3	4	2	0	12.61	23.44	85.67	35.89	44.94
1-231-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	29.80
1-232-27b	180-90	1	0	1	1	6	2	6	0	0	0	53.09	95.64	63.48
1-233-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	43.58
1-234-27b	180-90	1	0	3	2	6	3	6	0	1.26	8.87	34.73	49.74	15.68
1-235-27b	180-90	1	0	3	0	5	2	3	0	16.07	32.26	36.26	53.68	27.66
1-236-27b	180-90	1	1	3	0	4	2	3	0	10.8	29.36	40.33	45.55	24.78
1-237-27b	180-90	1	1	3	0	4	4	2	0	8.68	40.36	41.59	53.98	29.36
1-238-27b	180-90	1	1	1	2	4	4	2	0	6.24	19.74	48.3	57.82	18.18
1-239-27b	180-90	1	1	1	0	5	4	3	0	6.67	18.24	57.54	61.66	22.90
1-240-27b	180-90	1	1	3	0	4	4	6	0	4.14	43.42	46.33	63.78	27.84
1-241-27b	180-90	1	1	3	2	6	4	2	0	7.81	14.27	76.4	13.46	20.18
1-242-27b	180-90	1	1	3	2	3	2	3	0	11.14	34.56	36.28	38.45	31.02
1-243-27b	180-90	1	1	3	2	3	4	1	0	12	48.59	36.22	57.53	24.32
1-244-27b	180-90	1	1	3	0	4	2	2	0	9.94	36	41.93	55.47	31.06
1-245-27b	180-90	2	0	0	0	0	0	0	0	0	0	0	0	11.80
1-246-27b	180-90	1	0	0	2	6	2	3	0	7.63	23.99	41.72	29.49	13.46
1-247-27b	180-90	1	1	3	0	4	4	2	0	4.15	14.41	45.36	41.83	18.68
1-248-27b	180-90	1	1	3	0	3	4	2	0	9.18	17.33	41.07	41.56	12.46
1-249-27b	180-90	1	1	2	0	2	4	2	0	13.64	37.24	32.57	52.01	20.44
1-250-27b	180-90	1	1	3	2	4	4	2	0	5.12	39.55	73.85	88.62	84.82
1-251-27b	180-90	1	1	2	2	5	4	3	0	10.16	40.72	50.33	67.4	43.18

1-252-27b	180-90	1	2	3	0	5	4	2	0	11.96	28.13	52.33	47.93	27.04
1-253-27b	180-90	1	1	1	0	5	4	2	0	5.42	14.86	37.45	58.2	12.98
1-254-27b	180-90	1	1	3	0	4	4	2	0	14.53	36.15	44.84	68.86	30.46
1-255-27b	180-90	0	0	0	0	0	0	0	0	0	0	0	0	134.44
1-256-27b	180-90	1	1	1	2	5	4	2	0	6.65	31.2	37.97	61.73	20.08
1-257-27b	180-90	1	1	3	2	4	4	6	0	6.28	7.71	37.32	62.96	21.22
1-258-27b	180-90	1	1	3	0	5	4	2	0	5.7	27.03	46.74	45.52	16.34
1-259-27b	180-90	1	1	3	2	6	4	2	0	8.23	28.29	25.08	36.25	6.82
1-001-26b	170-80	1	0	0	0	2	4	2	0	5.1	11.87	32.89	27.95	9.64
1-002-26b	170-80	1	0	3	0	5	2	2	0	8.49	31.68	47.1	73.21	44.26
1-003-26b	170-80	1	1	3	0	6	4	6	0	10.33	33.33	33.43	49.82	24.72
1-004-26b	170-80	1	1	0	2	6	4	6	0	1.98	38.73	32.25	45.87	6.52
1-005-26b	170-80	1	0	0	0	2	2	2	0	2.77	16.23	32.31	33.4	6.38
1-006-26b	170-80	1	0	0	0	0	2	2	0	3.51	13.47	32.75	30.06	5.00
1-007-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	12.34
1-008-26b	170-80	1	1	3	2	4	4	2	0	6.13	12.13	41.59	34.41	7.62
1-009-26b	170-80	1	0	0	0	0	2	3	0	7.63	26.49	29.6	36.74	7.46
1-010-26b	170-80	1	0	0	0	2	2	2	0	1.39	8.38	26.31	22.87	2.18
1-011-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	4.78
1-012-26b	170-80	1	1	0	0	4	4	2	0	3.22	28.2	22.45	36.18	4.06
1-013-26b	170-80	1	1	0	0	3	4	2	0	3.9	12.85	14.1	27.17	2.60
1-014-26b	170-80	1	0	0	0	2	2	3	0	2.83	13.62	12.46	17.46	0.72
1-015-26b	170-80	1	1	0	0	6	4	2	0	1.22	11.52	15.56	17.65	0.68
1-016-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	3.40
1-017-26b	170-80	1	0	0	0	6	2	0	0	0	0	13.55	12.06	0.42
1-018-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	1.56
1-019-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.26
1-020-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.48
1-021-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-022-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.24
1-023-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.46
1-024-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.24
1-025-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.28

1-026-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.22
1-027-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.16
1-028-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.32
1-029-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.38
1-030-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.68
1-031-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.36
1-032-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-033-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.70
1-034-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	1.18
1-035-26b	170-80	1	1	0	0	2	4	0	0	1.26	8.45	9.38	20.63	0.70
1-036-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.70
1-037-26b	170-80	1	1	0	0	0	4	2	0	1.64	11.52	9.33	14.16	0.32
1-038-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	1.18
1-039-26b	170-80	1	1	0	0	3	2	2	0	2.29	10.79	18.17	14.98	1.82
1-040-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.54
1-041-26b	170-80	1	1	0	0	2	3	2	0	5.3	12.59	19.28	16.38	1.54
1-042-26b	170-80	1	0	0	0	3	2	2	0	4.29	10.76	16.36	11.44	0.88
1-043-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.64
1-044-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.62
1-045-26b	170-80	3	0	0	0	0	0	0	0	0	0	0	0	1.24
1-046-26b	170-80	1	0	0	0	2	2	6	0	1.22	4.05	15.11	17.17	0.70
1-047-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	1.00
1-048-26b	170-80	1	1	0	0	3	4	2	0	1.79	11.45	15.61	18.79	0.66
1-049-26b	170-80	1	0	0	2	0	4	2	0	13.75	12.97	13.12	13.75	0.58
1-050-26b	170-80	1	0	0	0	2	2	2	0	1.73	4.23	13.22	14.91	0.66
1-051-26b	170-80	1	0	0	0	3	2	2	0	2.6	9.41	13.45	10.02	0.44
1-052-26b	170-80	1	0	0	0	2	4	2	0	1.62	3.26	11.09	11.9	0.22
1-053-26b	170-80	1	0	0	0	2	2	2	0	2.56	10.28	16.45	15.63	1.06
1-054-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.14
1-055-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.18
1-056-26b	170-80	2	0	0	0	0	0	0	0	0	0	0	0	0.36
1-057-26b	170-80	1	0	0	0	2	2	6	0	1.39	3.14	8.79	10.87	0.30
2-001-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.36

2-002-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.22
2-003-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.34
2-004-26	2150-160	1	0	0	0	2	2	2	0	2.89	7.79	7.95	13.54	0.32
2-005-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.16
2-006-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-007-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-008-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.20
2-009-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-010-86	2150-160	1	0	0	0	6	0	0	0	1.93	8.12	9.37	11.01	0.30
2-011-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.12
2-012-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.20
2-013-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.46
2-014-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.20
2-015-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-016-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.64
2-017-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-018-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.32
2-019-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.16
2-020-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.42
2-021-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.44
2-022-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-023-86	2150-160	1	1	0	0	2	4	2	0	1.86	3.94	12.15	11	0.28
2-024-86	2150-160	1	0	0	0	6	2	0	0	1.4	7.7	10.5	9.39	0.24
2-025-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.30
2-026-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-027-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.22
2-028-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.20
2-029-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.32
2-030-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-031-86	2150-160	1	1	0	0	6	4	2	0	1.4	8.62	8.96	11.36	0.18
2-032-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.14
2-033-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-034-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.20

2-035-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.20
2-036-86	2150-160	1	0	0	0	6	4	2	0	3.71	8	7.74	10.56	0.30
2-037-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.24
2-038-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.56
2-039-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-040-86	2150-160	1	0	0	0	4	4	0	0	2.04	8.41	10.5	9.24	0.22
2-041-86	2150-160	1	0	0	0	0	2	3	0	2.59	7.34	10.31	12.29	0.32
2-042-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.16
2-043-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.22
2-044-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-045-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-046-86	2150-160	1	0	0	0	6	4	2	0	2.09	4.29	10.04	8.15	0.28
2-047-86	2150-160	1	0	0	0	0	4	2	0	1.27	8.46	9.03	9.66	0.16
2-048-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-049-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-050-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.20
2-051-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-052-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.42
2-053-86	2150-160*	*	*	*	*	*	*	*	*	*	*	*	*	
2-054-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.22
2-055-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.20
2-056-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-057-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-058-86	2150-160	1	0	0	0	6	2	2	0	3.13	7.88	7.31	12.2	0.20
2-059-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-060-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.16
2-061-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.28
2-062-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.12
2-063-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-064-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.22
2-065-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.34
2-066-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	3.84
2-067-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.16

2-068-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.54
2-069-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.80
2-070-86	2150-160	1	0	0	0	2	2	3	0	3.62	9.37	11.71	13.05	0.80
2-071-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.40
2-072-86	2150-160	1	0	0	0	2	4	6	0	0	0	14.6	11.7	0.30
2-073-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.48
2-074-86	2150-160	1	0	0	0	2	3	2	0	2.49	8.2	13.12	12.19	0.56
2-075-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.04
2-076-86	2150-160	1	1	0	0	6	4	2	0	1.93	7.85	13.91	15.59	0.58
2-077-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.02
2-078-86	2150-160	1	0	0	0	0	2	3	0	3.1	14.34	12.76	18.28	0.68
2-079-86	2150-160	1	0	0	0	0	2	2	0	1.79	4.74	10.92	16.21	0.38
2-080-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.98
2-081-86	2150-160	1	0	0	0	0	2	3	0	4.19	16.89	13.12	18.31	0.98
2-082-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50
2-083-86	2150-160	1	1	0	0	2	4	3	0	3.76	17.8	14.13	17.72	0.92
2-084-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	3.02
2-085-86	2150-160	1	1	0	0	6	4	3	0	3.18	13.85	9.5	14.99	0.42
2-086-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.68
2-087-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.80
2-088-86	2150-160	1	0	0	0	6	2	2	0	5.17	7.22	12.76	9.82	0.80
2-089-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.64
2-090-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.82
2-091-86	2150-160	1	0	0	0	0	2	2	0	2.59	14.75	10.24	17.3	0.52
2-092-86	2150-160	1	1	0	0	3	4	2	0	5.48	8.02	15.92	9.31	0.88
2-093-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.24
2-094-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.96
2-095-86	2150-160	1	0	0	0	2	2	2	0	2.94	10.37	14.36	12.49	0.62
2-096-86	2150-160	1	0	0	0	6	2	0	0	3.69	8.37	11.15	18.35	0.62
2-097-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.16
2-098-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-099-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-100-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50

2-101-86	2150-160	1	1	0	0	6	4	2	0	2.87	9.5	15.77	11.74	0.46
2-102-86	2150-160	1	0	0	0	3	2	2	0	2.83	9.92	15.79	13.83	0.80
2-103-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.36
2-104-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.76
2-105-86	2150-160	1	0	0	0	4	2	1	0	1.99	8.9	18.37	11.43	0.88
2-106-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.60
2-107-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.62
2-108-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-109-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.76
2-110-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.12
2-111-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.82
2-112-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.34
2-113-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-114-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.40
2-115-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.76
2-116-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.66
2-117-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.72
2-118-86	2150-160	0	0	0	0	0	0	0	0	0	0	0	0	0.40
2-119-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50
2-120-86	2150-160	1	1	0	0	2	2	2	0	2.57	8.88	16.43	9.63	0.58
2-121-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.36
2-221-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.46
2-123-86	2150-160	1	0	0	0	6	2	0	0	2.83	9.97	12.06	12.79	0.72
2-124-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.56
2-125-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.66
2-126-86	2150-160	1	0	0	0	6	2	2	0	3.81	14.02	12.29	18.32	0.96
2-127-86	2150-160	1	1	0	0	2	4	2	0	1.77	6.96	21.44	13.64	1.40
2-128-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.48
2-129-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.52
2-130-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.68
2-131-86	2150-160	1	1	0	0	3	2	0	0	0.93	5.08	11.44	11.16	0.42
2-132-86	2150-160	1	1	0	0	2	4	2	0	3.05	9.73	14.43	12.88	0.54
2-133-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.48

2-134-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-135-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.42
2-136-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.76
2-137-86	2150-160	1	0	0	0	6	0	0	0	3.89	16.17	13.78	17.08	0.82
2-138-86	2150-160	1	0	0	0	6	2	2	0	2.08	8.03	13.37	15.55	0.72
2-139-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.72
2-140-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.60
2-141-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.14
2-142-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-143-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.88
2-144-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.76
2-145-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.34
2-146-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-147-86	2150-160	1	0	0	0	2	2	6	0	0	0	10.81	12.66	0.50
2-148-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.24
2-149-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.34
2-150-86	2150-160	1	1	0	0	0	4	2	0	1.38	8.2	12.5	11.4	0.28
2-151-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-152-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.52
2-153-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.42
2-154-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.02
2-155-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.52
2-156-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.40
2-157-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.58
2-158-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.22
2-159-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-160-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.98
2-161-86	2150-160	1	0	0	0	0	2	6	0	2.5	9.62	9.14	13.31	0.38
2-162-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.74
2-163-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-164-86	2150-160	1	1	0	0	0	4	2	0	3.19	15.69	13.74	18.34	0.94
2-165-86	2150-160	1	0	0	0	6	4	2	0	3.39	14.39	15.6	20.53	1.10
2-166-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38

2-167-86	2150-160	1	0	0	0	2	4	2	0	2.5	6.14	10.2	13.28	0.38
2-168-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-169-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.16
2-170-86	2150-160	1	0	0	0	3	2	3	0	3.19	18.62	12.61	19.1	0.96
2-171-86	2150-160	1	0	0	0	3	2	2	0	1.71	3.81	12.93	11.42	0.62
2-172-86	2150-160	1	0	0	0	3	2	2	0	3.47	11.33	12.85	14.81	0.72
2-173-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.90
2-174-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-175-86	2150-160	1	1	0	0	0	4	3	0	3.13	15.4	19.6	15.91	0.78
2-176-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.42
2-177-86	2150-160	1	0	0	0	6	2	2	0	2.57	7.85	12.65	14.28	0.66
2-178-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50
2-179-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-180-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.34
2-181-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.76
2-182-86	2150-160	1	1	0	0	2	2	2	0	2.15	9.68	16.86	10.2	0.52
2-183-86	2150-160	1	0	0	0	2	2	2	0	2.29	5.41	12.01	12.85	0.48
2-184-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-185-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.46
2-186-66	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-187-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.54
2-188-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.54
2-189-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.30
2-190-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.42
2-191-86	2150-160	1	0	0	0	4	4	0	0	2.4	4.24	14.85	9.31	0.42
2-192-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.92
2-193-86	2150-160	1	1	0	0	0	4	0	0	1.48	6.45	17.89	12.27	0.56
2-194-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.76
2-195-86	2150-160	1	1	0	0	3	2	2	0	2.02	10.48	11.98	17.02	0.52
2-196-86	2150-160	1	0	0	0	0	2	2	0	2.92	8.94	11.93	15.53	0.58
2-197-86	2150-160	1	0	0	0	6	4	2	0	1.9	11.8	11.14	12.77	0.32
2-198-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.16
2-199-86	2150-160	1	1	0	0	2	2	2	0	2.53	12.63	10.69	14.42	0.58

2-200-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.56
2-201-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.54
2-202-86	2150-160	1	0	0	0	6	4	2	0	3.37	11.66	11.88	15.68	0.56
2-203-86	2150-160	1	0	0	0	6	2	3	0	2.25	7.95	8.97	16.74	0.46
2-204-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50
2-205-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.84
2-206-86	2150-160	1	1	0	0	6	4	2	0	3.42	4.43	11.53	11.19	0.32
2-207-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-208-86	2150-160	1	1	0	2	4	4	2	0	2.79	12.21	17.48	14.54	0.74
2-209-86	2150-160	1	1	0	0	3	2	2	0	2.03	6.72	16.24	12.57	0.80
2-201-86	2150-160	1	0	0	0	2	2	2	0	2.01	6.47	9.68	14.91	0.50
2-211-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.28
2-212-86	2150-160	1	0	0	0	2	2	2	0	3.43	13.3	11.16	16.26	0.66
2-213-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.36
2-214-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.78
2-215-86	2150-160	1	0	0	0	6	2	3	0	3.08	10.25	10.67	18.69	0.58
2-216-86	2150-160	1	0	0	0	6	2	3	0	2.31	10.53	12.58	12.85	0.42
2-217-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.04
2-218-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.46
2-219-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.84
2-220-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.54
2-221-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.46
2-222-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.16
2-223-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-224-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.42
2-225-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.44
2-226-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-227-86	2150-160	1	0	0	0	2	4	2	0	1.1	11.98	10.51	21.27	0.54
2-228-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-229-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-230-86	2150-160	1	0	0	0	6	4	2	0	2.35	8.97	10.72	13.34	0.44
2-231-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.48
2-232-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30

2-233-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-234-86	2150-160	1	0	0	0	6	4	2	0	1.41	9.47	7.56	12.68	0.20
2-235-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.40
2-236-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-237-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-238-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-239-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.20
2-240-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.28
2-241-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-242-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-243-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.36
2-244-86	2150-160	1	0	0	0	6	2	2	0	1.44	8.9	8.21	13.62	0.36
2-245-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-246-86	2150-160	1	0	0	0	6	2	0	0	1.04	6.74	10.94	14.78	0.44
2-247-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.24
2-248-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.48
2-249-86	2150-160	1	1	0	2	6	2	2	0	1.7	7.32	14.81	11.28	0.38
2-250-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-251-86	2150-160	1	0	0	0	6	2	2	0	2.48	9.16	10.19	8.82	0.26
2-252-86	2150-160	1	0	0	0	0	4	2	0	1.09	2.76	10.63	12.66	0.30
2-253-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.28
2-254-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.28
2-255-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.34
2-256-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-257-86	2150-160	1	1	0	0	0	3	0	0	1.2	7.21	9.39	12.36	0.30
2-258-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.28
2-259-86	2150-160	1	0	0	0	2	4	3	0	1.87	10.78	13.99	12.58	0.38
2-260-86	2150-160	1	0	0	0	0	2	2	0	1.46	3.96	10.73	13.53	0.28
2-216-86	2150-160	1	0	0	2	3	2	1	0	1.45	11.52	8.73	14.76	0.56
2-262-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.32
2-263-86	2150-160	1	0	0	0	2	2	2	0	1.08	5.92	9.71	8.64	0.14
2-264-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.78
2-265-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.22

2-266-86	2150-160	1	1	0	0	2	2	2	0	1.11	4.08	8.7	11	0.18
2-267-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.24
2-268-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-269-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.22
2-270-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.66
2-271-86	2150-160	1	0	0	0	2	2	2	0	1.39	6.04	13.39	9.16	0.30
2-271-86	2150-160	1	0	0	0	3	2	2	0	1.37	5.74	14.13	12.04	0.50
2-273-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.34
2-274-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.48
2-275-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.58
2-276-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.66
2-277-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.34
2-278-86	2150-160	1	0	0	0	6	2	2	0	0.78	8.7	7.91	8.64	0.20
2-279-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.16
2-280-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-281-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.24
2-282-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-283-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-284-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-285-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.40
2-286-86	2150-160	1	1	0	0	6	2	2	0	1.5	8.99	9.37	11.24	0.28
2-287-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.46
2-228-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.26
2-289-86	2150-160	1	0	0	0	2	2	2	0	1.67	5.35	10.46	11.63	0.32
2-290-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-291-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.24
2-292-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.12
2-293-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.50
2-294-86	2150-160	1	1	0	0	6	4	2	0	1.66	16.48	17.65	16.21	1.36
2-295-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.70
2-296-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.76
2-297-86	2150-160	1	1	0	0	5	4	2	0	2.64	9.49	29.03	24.84	3.28
2-298-86	2150-160	1	1	0	0	4	4	0	0	6.37	20.57	20.49	24.66	3.12

2-299-86	2150-160	1	1	0	2	6	4	2	0	1.99	7.63	14.78	22.56	0.62
2-300-86	2150-160	1	0	0	0	6	2	6	0	2.67	13.78	14.75	22.6	1.64
2-301-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.42
2-302-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	2.46
2-303-86	2150-160	1	0	0	0	3	2	2	0	2.18	11.18	18.61	19.8	1.18
2-304-86	2150-160	1	1	0	2	6	4	2	0	2.06	9.66	15.13	16.72	0.62
2-305-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.68
2-306-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.64
2-307-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	2.32
2-308-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.68
2-309-86	2150-160	1	0	0	0	2	4	6	0	1.12	5.06	16.12	25.14	0.98
2-310-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.86
2-311-86	2150-160	1	1	0	0	2	2	2	0	2.38	12.52	16.7	16.34	1.08
2-312-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.00
2-313-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-314-86	2150-160	1	0	0	0	2	2	0	0	2.04	6.57	16.57	21.47	2.06
2-315-86	2150-160	1	1	0	0	2	2	2	0	1.07	3.61	24.45	13.94	0.90
2-316-86	2150-160	1	0	0	0	2	2	2	0	5	14.12	16.06	21.55	1.34
2-317-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.24
2-318-86	2150-160	1	1	3	2	3	4	2	0	5.25	17.07	30.12	24.19	5.78
2-319-86	2150-160	1	1	0	2	6	4	2	0	2.05	4.94	16.68	10.57	0.70
2-320-86	2150-160	1	1	3	0	3	4	6	0	2.83	15.46	31.09	31.26	8.02
2-321-86	2150-160	1	1	3	2	2	4	2	0	3.07	11.07	31.56	24.5	4.26
2-322-86	2150-160	1	0	0	2	6	2	6	0	2.77	13.75	23.47	35.51	4.42
3-323-86	2150-160	1	0	0	0	6	2	2	0	1.39	9.09	12.47	13.2	0.70
2-324-86	2150-160	1	1	0	0	2	3	3	0	4.17	15.22	20.5	23.18	2.44
2-325-86	2150-160	1	1	3	1	0	4	2	0	3.27	9.35	18.35	36.05	5.20
3-326-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.88
3-327-86	2150-160	1	0	0	0	4	4	2	0	1.98	7.33	20.34	22.72	1.58
3-328-86	2150-160	1	0	0	0	4	4	2	0	1.91	9.67	20.37	25.22	1.38
3-329-86	2150-160	1	1	0	0	6	4	2	0	1.77	7.38	19.02	31.06	2.66
3-330-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.00
2-331-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	4.42

2-332-86	2150-160	1	1	3	2	0	2	2	0	5.1	35.72	31.66	40.92	10.60
2-333-86	2150-160	1	0	0	0	3	2	3	0	3.1	29.95	21.13	31.51	3.34
2-334-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.64
2-335-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.44
2-336-86	2150-160	1	0	0	0	6	2	3	0	3.17	22.27	18.72	25.9	2.90
2-337-86	2150-160	1	0	0	0	3	2	3	0	3.98	10.16	22.34	18.41	1.78
2-338-86	2150-160	1	1	0	0	4	4	6	0	0.99	4.44	30.19	19.62	3.60
2-339-86	2150-160	1	0	0	0	4	2	2	0	3.6	10.1	19.8	23.37	2.54
2-340-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.94
2-341-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.78
2-342-86	2150-160	1	0	0	0	5	2	2	0	4.2	17.74	33.9	26.44	6.10
2-343-86	2150-160	1	1	0	0	3	2	2	0	2.41	13.4	37.29	21.88	4.78
2-344-86	2150-160	1	1	1	0	4	4	2	0	1.7	8.2	18.43	21.47	1.88
2-345-86	2150-160	1	1	0	2	4	2	2	0	2.55	10.13	28.12	13.57	2.38
2-346-86	2150-160	1	1	3	0	3	4	2	0	4.04	10.73	25.42	18.7	2.62
2-347-86	2150-160	1	1	3	2	1	2	2	0	5.04	13.48	26.93	28	5.80
2-348-86	2150-160	1	1	0	0	5	4	2	0	2.1	4.26	15.49	21.61	1.94
2-349-86	2150-160	1	0	0	0	3	2	2	0	3.64	10.88	12.79	14.47	0.70
2-350-86	2150-160	1	1	0	0	4	4	2	0	2.21	8.41	19.1	21.34	2.20
2-351-86	2150-160	1	0	0	0	6	4	3	0	2.75	15.38	13.64	20.69	1.18
2-352-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	2.88
2-353-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.96
2-354-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.80
2-355-86	2150-160	1	1	0	0	3	2	2	0	2.51	9.38	22.14	12.5	0.88
2-356-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.24
2-357-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.66
2-358-86	2150-160	1	0	0	2	1	2	6	0	3.52	4.88	27.27	19.2	4.08
2-359-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	3.64
2-360-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.30
2-361-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	4.98
2-362-86	2150-160	1	1	0	2	0	4	2	0	5.98	10.61	22.9	33.34	4.36
2-363-86	2150-160	1	1	0	0	4	2	2	0	4.92	21.48	21.57	22.2	2.74
2-364-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	19.34

2-365-86	2150-160	1	1	0	0	4	4	2	0	3.48	5.95	27.37	8.1	1.30
2-366-86	2150-160	1	1	0	0	4	4	2	0	2.06	14.77	11.13	19.84	0.70
2-367-86	2150-160	1	0	0	0	2	4	2	0	1.62	8.33	21.63	17.61	1.24
2-368-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	5.04
2-369-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.38
2-370-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.06
2-371-86	2150-160	1	0	0	2	6	2	1	0	3.69	14.53	11.69	16.23	0.74
2-372-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.78
2-373-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	2.78
2-374-86	2150-160	1	1	0	0	3	2	3	0	2.43	10.66	22.52	24.82	2.84
2-375-86	2150-160	1	0	0	0	3	2	2	0	5.18	18.24	19.13	29.3	2.74
2-376-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.52
2-377-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	3.10
2-378-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	2.40
2-379-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.12
2-380-86	2150-160	1	1	0	0	6	4	2	0	3.76	18.72	15.08	23.46	1.24
2-381-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.50
2-382-86	2150-160	1	1	0	2	5	4	2	0	3.6	20.93	24.33	33.21	4.10
2-383-86	2150-160	1	0	0	0	4	2	2	0	3.88	15.35	15.67	25.71	2.24
2-384-86	2150-160	1	0	0	0	2	4	3	0	4.74	15.85	17.29	24.01	2.30
2-385-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.18
2-386-86	2150-160	1	1	0	0	4	4	2	0	3.34	14.21	17.28	24.75	2.10
2-387-86	2150-160	1	1	0	0	4	2	3	0	2.74	22.43	21.12	29.49	2.94
2-388-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	2.02
2-389-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.70
2-390-86	2150-160	1	0	0	0	3	2	2	0	2.42	8.7	12.45	28.06	1.78
2-391-86	2150-160	1	1	0	0	3	4	0	0	4.14	12.27	17.07	18.77	1.70
2-392-86	2150-160	1	1	0	0	3	4	2	0	5.64	12.61	18.57	15.53	1.30
2-393-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.96
2-394-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.56
2-395-86	2150-160	1	1	0	0	0	2	3	0	6.97	18.8	16.3	24.22	2.70
2-396-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-397-86	2150-160	1	1	0	0	3	2	2	0	2.34	11.16	16.44	15.8	1.16

2-398-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.56
2-399-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.06
2-400-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.14
2-401-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.44
2-402-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.92
2-403-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.04
2-404-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.84
2-405-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.12
20406-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.54
2-407-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.68
2-408-86	2150-160	1	0	0	0	6	2	0	0	2.67	13.96	16.05	22.83	2.08
2-409-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.60
2-410-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.60
2-411-86	2150-160	1	1	0	0	3	4	2	0	1.7	6.35	13.81	13.06	0.72
2-412-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.38
2-413-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.80
2-414-86	2150-160	1	1	0	0	2	4	2	0	1.8	9.36	16.63	15.09	0.94
2-415-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.82
2-416-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.46
2-417-86	2150-160	1	0	0	0	6	2	2	0	1.59	9.52	12.67	13.77	0.64
2-418-86	2150-160	1	0	0	0	3	2	2	0	1.95	6.26	10.84	26.86	1.26
2-419-86	2150-160	1	1	0	0	2	4	0	0	0.74	8.04	10.94	17.67	0.62
2-420-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.76
2-421-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.00
2-422-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.52
2-423-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.76
2-424-86	2150-160	1	1	3	1	1	2	2	0	5.54	8.76	31.8	30.36	7.40
2-425-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	13.72
2-426-86	2150-160*	*	*	*	*	*	*	*	*	*	*	*		13.04
2-427-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	3.56
2-428-86	2150-160	1	1	3	1	6	0	0	0	19.77	31.01	43.7	49.38	32.94
2-429-86	2150-160	1	1	3	1	6	3	2	0	10.31	10.5	35.11	60.16	29.00
2-430-86	2150-160	1	1	0	0	5	4	2	0	5.9	18.58	23.38	22.6	3.84

2-431-86	2150-160	1	1	1	0	4	4	2	0	3.85	17.05	33.66	54.79	12.26
2-432-86	2150-160	1	1	1	2	3	4	2	0	5.14	21.71	24.14	67.61	18.90
2-433-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.62
2-434-86	2150-160	1	1	3	2	5	4	2	0	7.48	29.3	32.73	34.76	8.86
2-435-86	2150-160	1	1	3	0	3	4	2	0	1.94	5.79	25.68	26.32	2.48
2-436-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.56
2-437-86	2150-160	1	1	0	0	3	4	3	0	6.81	40.53	22.03	42.75	5.12
2-438-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	5.28
2-439-86	2150-160	1	1	0	0	3	4	3	0	4.03	16.88	20.89	30.39	3.40
2-440-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	2.04
2-441-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.86
2-442-86	2150-160	1	1	2	0	5	4	2	0	5.7	23.18	37.57	42.58	15.08
2-443-86	2150-160	1	1	0	2	3	4	2	0	3.14	17.13	16.98	23.78	2.28
2-444-86	2150-160	1	1	0	0	5	4	2	0	3.13	10.26	22.09	24.61	2.74
2-445-86	2150-160	1	0	0	0	3	4	0	0	5.62	13.16	19.7	22.72	3.02
2-446-86	2150-160	1	0	0	0	0	4	2	0	2.7	22.22	16.92	25.69	1.08
2-447-86	2150-160	1	1	3	1	0	2	3	0	5.22	16.32	28.9	33.36	4.48
2-448-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.58
2-449-86	2150-160	1	1	0	0	3	4	3	0	3.98	20.88	20.62	31.5	3.98
2-450-86	2150-160	1	1	3	0	5	4	3	0	35	38.24	38.1	51	19.42
2-451-86	2150-160	1	1	0	2	2	4	1	0	5.83	25.38	22.38	25.35	2.66
2-452-86	2150-160	1	0	0	2	6	2	1	0	5.63	18.7	32.26	29.49	6.82
2-453-86	2150-160	1	0	3	0	4	4	2	0	4.54	23.61	29.95	45.34	9.54
2-454-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	3.36
2-455-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-456-86	2150-160	1	1	3	0	2	4	2	0	2.88	9.68	25.69	25.9	2.24
2-457-86	2150-160	1	1	3	2	2	3	6	0	1.03	17.25	18.71	37.79	5.10
2-458-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.44
2-459-86	2150-160	1	1	0	0	3	4	2	0	4.03	10.01	23.34	29.56	4.62
4-460-86	2150-160	1	1	3	0	3	4	2	0	3.08	16.22	53.17	39.97	19.22
2-461-86	2150-160	1	0	0	0	0	2	2	0	7.82	22.11	24.13	48.49	5.76
2-462-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	23.78
2-463-86	2150-160	1	1	0	0	6	2	2	0	3.19	23.58	20.68	30.32	2.66

2-464-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.66
2-465-86	2150-160	1	1	1	2	5	4	2	0	3.23	7.09	24.09	55.87	12.46
2-466-86	2150-160	1	1	1	0	3	4	3	0	2.78	15.85	29.32	42.16	5.92
2-467-86	2150-160	1	1	3	0	4	4	2	0	6.33	22.28	38.5	37.22	11.08
2-468-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	36.60
2-469-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	9.02
2-470-86	2150-160	1	1	3	0	5	4	2	0	6.25	20.18	32.14	44.06	12.98
2-471-86	2150-160	1	0	0	0	5	2	2	0	5.55	21.85	24.96	27.93	4.98
2-472-86	2150-160	1	0	0	0	6	2	0	0	4.98	33.01	35.15	39.09	6.34
2-477-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.64
2-474-86	2150-160	1	1	0	0	0	4	2	0	6.69	13.86	21.32	23.48	2.76
2-475-86	2150-160	1	1	0	0	3	4	2	0	3.12	12.36	24.87	21.68	3.02
2-476-86	2150-160	1	0	0	0	4	2	3	0	4.64	10.42	28.79	18.76	3.12
2-473-86	2150-160	1	1	0	0	6	4	1	0	7.23	35.46	22.16	35.3	4.74
2-478-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.64
2-479-86	2150-160	1	1	0	0	2	4	2	0	6.88	18.86	18.03	19.17	1.76
2-480-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	2.26
2-481-86	2150-160	1	1	3	0	2	3	2	0	7.75	15.45	44.8	30.11	10.10
2-482-86	2150-160	1	1	0	0	4	2	3	0	5.17	15.88	23.36	27.57	5.18
2-483-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	4.80
2-484-86	2150-160	1	0	0	0	3	4	6	0	0	0	21.49	29.22	4.80
2-485-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	8.64
2-486-86	2150-160	1	1	0	0	2	4	2	0	7.06	15.93	20.51	14.94	2.96
2-487-86	2150-160	1	1	1	2	5	4	2	0	4.43	12.13	83.14	32.59	28.22
2-488-86	2150-160	1	1	0	0	6	2	2	0	5.6	16.57	27.9	27.29	4.28
2-489-86	2150-160	1	1	3	2	3	3	2	0	4.45	12.43	28.3	43.93	6.68
2-490-86	2150-160	1	1	0	0	3	2	2	0	6.52	24	24.56	25.95	6.96
2-491-86	2150-160	1	0	0	0	5	2	3	0	2.81	21.41	18.28	32.15	2.58
2-492-86	2150-160	1	0	0	0	6	2	2	0	3.17	12.94	17.96	21.21	1.86
2-493-86	2150-160	1	1	0	0	4	4	2	0	1.29	6.08	17.96	15.89	0.68
2-494-86	2150-160	1	0	0	0	2	2	0	0	4.42	13.81	32.11	16.23	3.18
2-495-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.96
2-496-86	2150-160	1	1	0	2	3	4	2	0	2.27	13.31	25.34	20.04	2.36

2-497-86	2150-160	1	1	0	0	3	4	3	0	5.51	20.61	20.38	19.97	2.32
2-498-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.20
2-499-86	2150-160	1	1	0	0	6	4	2	0	4.52	6.64	32.99	24.69	3.38
2-500-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	2.46
2-501-86	2150-160	1	1	1	0	4	4	2	0	4.06	11.02	14.5	27.41	1.80
2-502-86	2150-160	1	1	3	0	2	4	0	0	9.74	22.7	23.38	31.16	6.22
2-503-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.76
2-504-86	2150-160	1	1	0	0	6	2	3	0	3.47	14.16	20.83	41.02	7.14
2-505-86	2150-160	1	1	0	0	3	4	2	0	4.95	12.7	23.02	25.9	2.46
2-506-86	2150-160	1	0	0	0	0	2	3	0	4.27	16.83	19.88	23.36	1.88
2-507-86	2150-160	1	1	0	0	3	4	3	0	3.78	28.26	22.3	29.41	4.02
2-508-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.04
2-509-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.50
2-510-86	2150-160	1	1	0	2	3	4	6	0	8.78	29.84	53.08	30.41	10.14
2-511-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.04
2-512-86	2150-160	1	1	3	1	6	4	2	0	15.93	20.12	40.16	53.34	35.50
2-513-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	6.98
2-514-86	2150-160	1	0	0	1	2	2	1	0	5.16	18.16	28.7	23.01	3.96
2-515-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.94
2-516-86	2150-160	1	0	0	0	3	2	2	0	1.2	8.8	23.72	19.92	1.58
2-517-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.34
2-518-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	4.20
2-519-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.82
2-520-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.92
2-551-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.18
2-522-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.82
2-523-86	2150-160	1	1	0	0	3	4	2	0	6.62	13.76	20.54	26.29	2.92
2-524-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	4.00
2-525-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.66
2-526-86	2150-160	1	1	0	2	2	4	2	0	2.55	9.59	17.66	15.25	0.98
2-527-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.18
2-528-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.16
2-529-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.58

2-530-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.90
2-531-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.56
2-532-86	2150-160	1	1	0	0	5	4	2	0	2.08	6.33	21.23	14.07	1.58
2-533-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.80
2-534-86	2150-160	1	1	3	0	2	4	2	0	2.46	3.15	24.82	6.19	0.54
2-535-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.40
2-536-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.38
2-537-86	2150-160	1	0	0	1	0	2	1	0	4.72	16.41	21.08	28.55	3.04
2-538-86	2150-160	1	1	0	0	6	4	2	0	2.36	7.03	11.34	14.6	0.34
2-539-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	2.28
2-540-86	2150-160	1	0	0	1	3	2	2	0	2.02	4.05	15.46	18.2	1.50
2-541-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-542-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.10
2-543-86	2150-160	1	0	0	2	6	2	2	0	2.35	10.87	10.97	18.75	0.76
2-544-86	2150-160	1	1	0	0	4	2	0	0	4.03	14.67	14.45	17.44	1.30
2-545-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	2.38
2-546-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.88
2-547-86	2150-160	1	1	0	0	6	2	2	0	1.88	4.99	10.61	8.02	0.20
2-548-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.86
2-549-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.90
2-550-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.36
2-551-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.60
2-552-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.54
2-553-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	1.30
2-554-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-555-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.64
2-556-86	2150-160	1	0	0	0	5	4	6	0	1.69	9.6	19.65	25.85	2.54
2-557-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.34
2-558-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50
2-559-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.80
2-560-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50
2-561-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.44
2-562-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.74

2-563-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.72
2-564-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-565-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-566-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.64
2-567-86	2150-160	1	1	0	0	0	2	0	0	0.52	4.76	10.24	13.12	0.20
2-568-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-569-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.22
2-570-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.42
2-571-86	2150-160	1	1	0	0	6	4	0	0	3.42	11.37	14.88	21.95	1.10
2-572-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.66
2-573-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.68
2-574-86	2150-160	1	1	0	0	2	4	2	0	3.31	7.67	11.84	10.28	0.36
2-575-86	2150-160	1	1	0	0	3	2	2	0	1.38	7.83	14.75	10.6	0.44
2-576-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.40
2-577-86	2150-160	1	0	0	0	6	4	6	0	3.04	11.35	10.97	21.99	0.82
2-578-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50
2-579-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	1.06
2-580-86	2150-160	1	1	0	0	4	4	2	0	4.76	9.3	11.36	10.8	0.78
2-581-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.58
2-582-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.54
2-583-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.20
2-584-86	2150-160	1	1	0	0	3	2	6	0	0.5	3.61	11.93	11.41	0.24
2-585-86	2150-160	1	0	0	0	0	4	6	0	1.68	2.04	11.1	13.14	0.36
2-586-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	3.00
2-587-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.40
2-588-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.48
2-589-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.40
2-590-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.66
2-591-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.62
2-592-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.30
2-593-86	2150-160	1	1	0	0	6	4	2	0	3.07	10.28	9.36	14.49	0.42
2-594-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-595-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32

2-596-86	2150-160	1	0	0	0	6	2	0	0	1.36	10.5	14.83	18.66	0.92
2-597-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50
2-598-86	2150-160	0	0	0	0	0	0	0	0	0	0	0	0	0.16
2-599-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.48
2-600-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.82
2-601-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.14
2-602-86	2150-160	1	1	0	0	2	2	2	0	2.73	8.59	17.65	9.88	0.54
2-603-86	2150-160	1	0	0	0	2	2	3	0	1.78	6.6	8.83	10.99	0.28
2-604-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.74
2-605-86	2150-160	1	1	0	1	0	4	1	0	4.26	10.34	9.82	16.33	0.70
2-606-86	2150-160	1	1	0	0	2	2	2	0	1.94	5.9	8.57	11.89	0.24
2-607-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.54
2-608-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-609-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.50
2-610-86	2150-160	1	1	0	0	3	4	2	0	1.71	4.96	16.54	9.52	0.28
2-611-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.24
2-612-86	2150-160	1	1	0	2	0	2	2	0	1.17	9.71	10.19	14.36	0.32
2-613-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.28
2-614-86	2150-160	3	0	0	0	0	0	0	0	0	0	0	0	0.54
2-615-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-617-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.60
2-618-86	2150-160	1	0	0	0	2	2	2	0	2.65	8.98	7.85	11.29	0.24
2-618-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.58
2-619-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.60
2-620-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-621-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.46
2-622-86	2150-160	1	1	0	0	2	4	2	0	3.98	8.3	12.99	8.4	0.30
2-263-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.16
2-624-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-625-86	2150-160	1	0	0	0	4	4	6	0	1.17	16.07	22.24	32.54	3.86
2-626-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.32
2-627-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.24
2-628-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.10

2-629-86	2150-160	1	1	0	0	0	2	2	0	1.59	8.21	8.62	9.54	0.22
2-630-86	2150-160	1	1	0	0	3	4	2	0	2.15	6.32	8.83	12.09	0.26
2-631-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.24
2-632-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.20
2-634-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.14
2-635-86	2150-160	2	0	0	0	0	0	0	0	0	0	0	0	0.18
2-001-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	13.22
2-002-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	6.46
2-003-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	7.70
2-004-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	6.04
2-005-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	6.40
2-006-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	3.14
2-007-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	1.18
2-008-44b	210-20	1	1	3	1	0	2	3	0	7.12	45.59	56.05	78.94	47.96
2-009-44b	210-20	1	0	3	0	6	2	0	0	5.71	30.39	39.76	71.61	42.96
2-010-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	7.10
2-011-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	0.62
2-012-44b	210-20	1	0	0	0	6	2	2	0	7.97	14.19	16.47	23.66	1.98
2-013-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	2.72
2-014-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	14.02
2-015-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	1.24
2-016-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	1.04
2-017-44b	210-20	1	1	0	2	3	4	3	0	3.94	11.78	11.93	23.33	1.08
2-018-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	4.56
2-019-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	4.74
2-020-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	0.80
2-021-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	2.72
2-022-44b	210-20	1	0	0	0	2	4	6	0	3.66	6.44	14.81	17.57	1.16
2-023-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	1.12
2-024-44b	210-20	1	1	0	1	0	2	2	0	7.66	13.08	29.13	20.12	4.48
2-025-44b	210-20	1	0	0	0	6	4	6	0	2.83	10.23	13.66	27.89	1.10
2-026-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	3.14
2-027-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	0.34

2-028-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	0.56
2-029-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	1.42
2-030-44b	210-20	3	0	0	0	0	0	0	0	0	0	0	0	0.82
2-031-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	1.34
2-032-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	1.48
2-033-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	5.18
2-034-44b	210-20	1	1	0	2	6	4	0	0	5.72	22.52	10.99	22.48	1.12
2-035-44b	210-20	2	0	0	0	0	0	0	0	0	0	0	0	0.92
2-036-44b	210-20	1	0	0	1	6	2	2	0	5.44	13.7	17.11	21.88	2.24
2-001-53	260-70	1	1	0	0	5	4	2	0	1.77	10.67	25.53	33.8	2.86
2-002-53	260-70	2	0	0	0	0	0	0	0	0	0	0	0	16.92
2-003-53	260-70	2	0	0	0	0	0	0	0	0	0	0	0	1.32
2-004-53	260-70	1	1	0	1	0	4	1	0	7.44	26.34	20.3	37.08	5.70
2-005-53	260-70	3	0	0	0	0	0	0	0	0	0	0	0	2.78
2-006-53	260-70	1	0	3	0	4	4	6	0	0	0	25.72	52.56	8.96
2-007-58	260-70	3	0	0	0	0	0	0	0	0	0	0	0	4.44
2-008-53	260-70	1	1	3	0	4	4	2	0	7.15	18.12	45.77	58.24	28.24
2-009-53	260-70	1	1	3	1	1	4	1	0	5.34	31.9	17.77	38.24	2.96
2-010-53	260-70	1	1	0	1	0	2	1	0	5.7	40.59	25.07	40.63	6.98
2-011-53	260-70	1	1	3	0	3	2	3	0	4.56	21.17	55.52	53.7	16.56
2-012-53	260-70	3	0	0	0	0	0	0	0	0	0	0	0	0.94
2-013-53	260-70	2	0	0	0	0	0	0	0	0	0	0	0	0.80
2-014-53	260-70 *	*	*	*	*	*	*	*	*	*	*	*		35.78
2-015-53	260-70	1	1	0	2	6	2	1	0	7.64	26.2	19.42	26.4	3.90
2-016-53	260-70	3	0	0	0	0	0	0	0	0	0	0	0	9.06
2-017-53	260-70	3	0	0	0	0	0	0	0	0	0	0	0	1.82
2-001-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	3.92
2-002-68d	2120-130	3	0	0	0	0	0	0	0	0	0	0	0	0.70
2-003-68d	2120-130	3	0	0	0	0	0	0	0	0	0	0	0	0.78
2-004-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	1.66
2-005-86d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	2.34
2-006-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	1.70
2-007-68d	2120-130	3	0	0	0	0	0	0	0	0	0	0	0	3.42

2-008-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	0.66
2-009-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	1.40
2-010-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	1.10
2-011-68d	2120-130	3	0	0	0	0	0	0	0	0	0	0	0	1.38
2-012-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	1.76
2-013-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	4.40
2-014-68d	2120-130	2	0	0	0	0	0	0	2	0	0	0	0	3.48
2-015-68b	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	5.52
2-016-68d	2120-130	1	0	0	2	6	4	1	0	6.45	34.32	22.6	33.85	5.50
2-017-68d	2120-130	1	1	3	0	5	4	2	0	11.22	25.68	41.06	43.96	27.54
2-018-69d	2120-130	2	0	0	0	0	0	0	2	0	0	0	0	4.42
2-019-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	0.82
2-020-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	5.54
2-021-68d	2120-130	1	1	1	2	6	4	0	0	2.89	18.62	32.63	50.8	12.14
2-022-68d	2120-130*	*	*	*	*	*	*	*	*	*	*	*		16.20
2-023-68d	2120-130	1	1	1	0	3	4	2	0	4.45	12.83	19.77	34.94	4.84
2-024-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	3.66
2-025-68d	2120-130	3	0	0	0	0	0	0	0	0	0	0	0	3.62
2-026-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	2.98
2-027-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	1.00
2-028-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	0.40
2-029-68d	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	0.64
2-001-68a	2120-130	2	0	0	0	0	0	0	0	0	0	0	0	8.06
2-001-68b	2120-130	2	0	0	0	0	0	0	1	0	0	0	0	2.38
2-001-68c	2120-130	1	1	0	0	0	4	4	1	2.69	5.6	24.97	13.64	1.28
2-001-48b	230-40	3	0	0	0	0	0	0	0	0	0	0	0	0.28
2-002-48b	230-40	3	0	0	0	0	0	0	0	0	0	0	0	0.38
2-003-48b	230-40	3	0	0	0	0	0	0	0	0	0	0	0	0.44
2-004-48b	230-40	3	0	0	0	0	0	0	0	0	0	0	0	0.42
2-005-48b	230-40	1	1	0	2	2	4	1	0	5.27	17.61	11.76	17.43	0.78
2-006-48b	230-40	2	0	0	0	0	0	0	0	0	0	0	0	0.82
2-007-48b	230-40	1	1	0	0	2	4	0	0	8.23	17.5	13.01	24.18	1.48
2-008-48b	230-40	2	0	0	0	0	0	0	0	0	0	0	0	1.56

2-009-48b	230-40	3	0	0	0	0	0	0	0	0	0	0	0	2.28
2-010-48b	230-40	2	0	0	0	0	0	0	0	0	0	0	0	1.52
2-011-48b	230-40	3	0	0	0	0	0	0	0	0	0	0	0	3.82
2-012-48b	230-40	1	1	3	1	3	4	1	0	12.92	34.16	29.33	40.57	11.54
2-013-48b	230-40	1	0	0	2	0	2	1	0	4.31	15.14	15.89	25.87	2.16
2-014-48b	230-40	3	0	0	0	0	0	0	0	0	0	0	0	5.68
2-015-48b	230-40	1	1	0	0	0	4	0	0	5.15	10.48	26.34	18.56	2.62
2-016-48b	230-40	1	1	3	2	4	4	1	0	6.69	28.42	33.69	28.84	5.30
2-017-48b	230-40	1	1	3	2	2	4	1	0	13.86	46.77	23.35	46.37	9.50
2-018-48b	230-40	2	0	0	0	0	0	0	0	0	0	0	0	4.46
2-001-4ba	230-40	1	1	0	0	1	2	2	1	17.85	57.59	37.91	66.39	34.26
2-001-71	2130-140	1	1	0	0	0	2	0	0	9.32	42.47	41.87	42.78	14.98
2-002-71	2130-140	2	0	0	0	0	0	0	0	0	0	0	0	11.82
2-003-71	2130-140	0	0	0	0	0	0	0	0	0	0	0	0	3.32
2-004-71	2130-140	2	0	0	0	0	0	0	0	0	0	0	0	12.98
2-005-71	2130-140	2	0	0	0	0	0	0	0	0	0	0	0	2.96
2-006-71	2130-140	2	0	0	0	0	0	0	2	0	0	0	0	3.54
2-007-71	2130-140	2	0	0	0	0	0	0	0	0	0	0	0	2.32
2-008-71	2130-140	2	0	0	0	0	0	0	0	0	0	0	0	6.48
2-009-71	2130-140	2	0	0	0	0	0	0	0	0	0	0	0	2.34
2-010-71	2130-140	1	1	0	0	0	4	0	0	3.16	16.62	16.07	27.81	1.64
2-001-55	270-80	2	0	0	0	0	0	0	0	0	0	0	0	21.12
2-022-55	270-80	1	1	3	2	2	4	1	0	4.72	23.81	43.62	31.05	14.18
2-03-55	270-80	1	1	0	0	5	4	2	1	5.59	15.82	47.35	35.79	16.88
2-004-55	270-80	2	0	0	0	0	0	0	0	0	0	0	0	7.44
2-005-55	270-80	2	0	0	0	0	0	0	0	0	0	0	0	5.64
2-006-55	270-80	2	0	0	0	0	0	0	0	0	0	0	0	1.42
2-007-55	270-80	1	0	0	0	2	2	0	0	1.38	10.24	20.22	23.06	1.88
2-008-55	270-80	2	0	0	0	0	0	0	0	0	0	0	0	4.04
2-009-55	270-80	1	1	0	0	5	2	2	0	7.99	18.05	41.91	38.34	26.06
2-010-55	270-80	2	0	0	0	0	0	0	0	0	0	0	0	4.70
2-011-55	270-80	2	0	0	0	0	0	0	0	0	0	0	0	9.34
2-001-70	2120-130	1	1	0	0	4	4	2	1	3.05	12.65	42.58	44.5	11.78

2-001-58	2100-110	2	0	0	0	0	0	0	0	0	0	0	0	22.82
2-002-58	2100-110	1	1	0	1	0	4	2	0	7.82	15.71	22.8	21.14	3.28
2-003-58	2100-110	2	0	0	0	0	0	0	0	0	0	0	0	6.20
2-004-58	2100-110	3	0	0	0	0	0	0	0	0	0	0	0	9.90
2-005-58	2100-110	2	0	0	0	0	0	0	0	0	0	0	0	3.36
2-006-58	2100-110	1	0	3	0	5	4	3	0	11.7	22.05	44.15	49.44	27.58
2-001-60	2110-120	2	0	0	0	0	0	0	0	0	0	0	0	118.66
2-002-60	2110-120	1	1	0	0	4	4	2	0	5.59	19.92	45.19	25.24	13.36
2-003-60	2110-120	2	0	0	0	0	0	0	0	0	0	0	0	0.84
2-004-60	2110-120	2	0	0	0	0	0	0	0	0	0	0	0	8.12
2-005-60	2110-120	2	0	0	0	0	0	0	0	0	0	0	0	2.20
2-006-60	2110-120	2	0	0	0	0	0	0	0	0	0	0	0	7.54
2-007-60	2110-120	2	0	0	0	0	0	0	0	0	0	0	0	2.76
2-008-60	2110-120	2	0	0	0	0	0	0	0	0	0	0	0	2.08
2-009-60	2110-120	2	0	0	0	0	0	0	0	0	0	0	0	1.44
2-001-57	290-100	1	0	0	0	5	2	2	0	2.11	7.54	21.75	20.57	1.82
2-002-57	290-100	2	0	0	0	0	0	0	0	0	0	0	0	0.74
2-003-57	290-100	3	0	0	0	0	0	0	0	0	0	0	0	13.90
2-004-57	290-100	1	0	0	0	0	2	2	0	5.89	19.84	40.19	38.88	13.94
2-005-57	290-100	1	1	0	2	6	2	0	0	15.53	31.11	28.86	40.77	14.92
2-001-56	280-90	1	1	1	0	5	4	2	0	3.63	17.29	32.72	41.33	5.36
2-002-56	280-90	2	0	0	0	0	0	0	0	0	0	0	0	15.54
2-003-56	280-90	3	0	0	0	0	0	0	0	0	0	0	0	3.72
2-004-56	280-90	3	0	0	0	0	0	0	0	0	0	0	0	4.34
2-005-56	280-90	2	0	0	0	0	0	0	0	0	0	0	0	18.10
2-006-56	280-90	2	0	0	0	0	0	0	0	0	0	0	0	2.50
2-007-56	280-90	1	1	0	0	3	4	2	0	4.38	8.16	33.95	26.22	10.14
2-008-56	280-90	2	0	0	0	0	0	0	0	0	0	0	0	0.58
2-001-52	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.82
2-002-52	250-60	1	0	0	1	0	2	6	0	4.93	21.1	19.65	21.54	2.04
2-003-52	250-60	2	0	0	0	0	0	0	0	0	0	0	0	7.06
2-004-52	250-60	1	0	3	0	6	4	2	0	12.1	28.89	48.81	34.9	16.24
2-005-52	250-60	1	1	3	1	6	4	2	0	4.36	16.22	22.87	46.8	6.14

2-006-52	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.72
2-007-52	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.96
2-008-52	250-60	1	1	3	2	2	2	1	0	13.57	69.12	55.83	88.7	90.28
2-001-54	260-70	2	0	0	0	0	0	0	1	0	0	0	0	16.00
2-001-92	2210-220	1	1	0	1	1	4	1	0	3.21	9.7	21.13	23.39	1.52
2-001-91	2200-210	1	1	3	0	5	3	2	0	3.52	12.53	41.48	45.51	14.00
2-001-45	210-20	*	*	*	*	*	*	*	*	*	*	*	*	682.20
2-001-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.46
2-002-51b	250-60	1	0	0	0	2	2	6	0	1.56	4.62	10.91	11.58	0.38
2-003-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.56
2-004-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.58
2-005-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.46
2-006-51b	250-60	1	1	0	0	2	2	3	0	3.53	9.57	13.55	9.58	0.60
2-007-51b	250-60	1	0	0	0	6	2	6	0	0.94	5.31	8.16	14.89	0.24
2-008-51	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.22
2-009-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.58
2-010-51b	250-60	1	1	0	0	0	4	2	0	3.94	15.45	7.1	17.51	0.32
2-011-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.62
2-012-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.56
2-013-51b	250-60	1	1	0	0	2	4	2	0	4.13	7.39	12	15.53	0.64
2-014-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.54
2-015-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.64
2-016-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.82
2-017-51b	250-60	1	1	0	0	4	4	0	0	1.75	7.1	16.19	13.05	0.32
2-018-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.64
2-019-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.12
2-020-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.08
2-021-51b	250-60	1	1	0	2	6	4	2	0	7.08	5.53	23.21	12.44	1.66
2-022-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.58
2-023-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.58
2-024-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.38
2-025-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.00
2-026-51b	250-60	1	0	0	0	0	4	0	0	5.41	8.42	13.04	14.23	0.92

2-027-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.86
2-028-51b	250-60	1	1	0	0	4	4	2	0	2.83	7.6	14.08	15.81	0.56
2-029-51b	250-60	1	0	0	0	3	2	2	0	1.29	5.34	11.36	15.11	0.62
2-030-51b	250-60	1	1	0	0	0	4	2	0	3.18	10.65	16.25	13.49	0.74
2-031-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.84
2-032-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.86
2-033-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.80
2-034-51b	250-60	1	1	0	2	6	2	2	0	3.24	15.84	13.52	21.51	1.00
2-035-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.40
2-036-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.74
2-037-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.50
2-038-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.76
2-039-51b	250-60	1	1	0	0	0	2	3	0	4.41	16.54	11.5	25.22	1.30
2-040-51b	250-60	1	1	0	0	5	4	2	0	3.05	7.33	21.48	13.13	1.12
2-041-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.16
2-042-51b	250-60	1	1	0	0	6	4	0	0	2.98	9.21	23.27	16.05	1.42
2-043-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.94
2-044-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.72
2-045-51b	250-60	1	1	0	0	6	4	3	0	1.68	9.77	15.05	19.64	0.60
2-046-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.12
2-047-51b	250-60	1	0	0	0	4	2	2	0	2.44	6.46	18.39	14.55	1.06
2-048-51b	250-60	1	1	0	0	5	4	2	0	1.77	4.92	17.22	17.42	1.68
2-049-51b	250-60	1	1	0	2	6	4	2	0	1.85	5.75	13.68	23.86	0.92
2-050-51b	250-60	1	1	0	0	2	4	3	0	3.83	19.91	16.06	23.11	1.54
2-051-51b	250-60	1	1	0	0	4	2	6	0	1.23	11.56	14.02	19.66	1.18
2-052-25b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.88
2-053-51b	250-60	1	1	0	0	2	4	3	0	2.7	13.11	16.62	18.37	1.26
2-054-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.90
2-055-51b	250-60	1	1	0	0	4	4	0	0	1.37	13.02	16.44	24.48	1.17
2-056-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.14
2-057-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	0.90
2-058-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.84
2-059-51b	250-60	1	1	0	0	3	2	3	0	6.13	16.2	16.34	19.19	2.04

2-060-51b	250-60	1	1	0	0	3	4	2	0	4.04	12.49	14.17	28.58	2.72
2-061-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.30
2-062-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.76
2-063-51b	250-60	1	1	0	0	6	0	0	0	9.17	7.62	26.83	12.43	2.88
2-064-51b	250-60	1	0	0	0	3	4	6	0	2.77	14.54	17.34	19.8	1.60
2-065-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.30
2-066-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.44
2-067-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	3.52
2-068-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.98
2-069-51b	250-60	1	1	0	2	6	4	2	0	1.6	9.75	13.33	26.29	1.52
2-070-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.66
2-071-5b	250-60	1	0	0	0	3	2	6	0	0.99	12.83	19.63	21.35	1.14
2-071-51b	250-60	1	0	0	2	2	2	1	0	5.16	18.46	13.64	18.54	2.08
2-073-51b	250-60	1	1	0	2	6	2	1	0	6.81	13.67	21.25	14.58	2.08
2-074-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.88
2-075-51b	250-60	1	1	0	2	6	4	2	0	4.29	6.79	20.37	17.94	3.20
2-076-51b	250-60	1	1	0	0	3	2	2	0	4.44	14.45	20.74	19.32	1.82
2-077-51b	250-60	1	0	0	0	6	2	2	0	5.1	9.26	19.14	15.47	1.70
2-078-51b	250-60	1	0	0	2	0	4	6	0	2.19	3.3	19.26	23.81	1.60
2-079-51b	250-60	3	0	0	0	0	0	0	0	0	0	0	0	5.18
2-080-51b	250-60	1	0	0	0	3	2	2	0	4.83	16.25	18.34	19.34	2.00
2-081-51b	250-60	1	0	0	0	2	2	3	0	3.7	16.01	15.66	24.42	1.92
2-082-51b	250-60	3	0	0	0	0	0	0	0	0	0	0	0	2.66
2-083-51b	250-60	1	0	0	0	6	2	2	0	3.56	13.66	11.56	22.19	1.38
2-084-51b	250-60	1	0	0	0	0	4	2	0	1.72	10.11	18.19	16.58	1.10
2-085-51b	250-60	1	1	0	0	4	4	0	0	1.02	9.67	24.85	16.16	3.26
2-086-51b	250-60	1	0	0	0	2	2	2	0	6.63	21.06	12.77	24	2.44
2-087-51b	250-60	1	0	0	0	3	4	6	0	1.4	13.62	17.19	27.37	3.30
2-088-51b	250-60	1	0	0	0	6	2	3	0	5.56	19.11	17.3	22.45	2.40
2-089-51b	250-60	1	1	0	0	5	3	2	0	2.71	12.22	17.81	18.34	1.68
2-090-51b	250-60	1	0	0	0	3	2	2	0	5.07	13.28	17.84	21.17	2.82
2-091-51b	250-60	1	0	0	0	6	2	2	0	1.92	15.81	20.6	20.25	2.48
2-092-51b	250-60	1	1	0	0	2	4	2	0	3.26	7.4	13.23	19.87	0.94

2-093-51b	250-60	1	0	0	0	3	2	3	0	3.44	12.7	21.44	26.71	3.50
2-094-51b	250-60	3	0	0	0	0	0	0	0	0	0	0	0	1.40
2-095-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.82
2-096-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.84
2-097-51b	250-60	1	0	0	0	3	2	2	0	3.6	11.56	19.15	20.01	2.08
2-098-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.32
2-099-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.12
2-100-51b	250-60	1	0	0	0	0	2	2	0	5.63	15.29	21.27	19.67	2.70
2-101-51b	250-60	1	1	0	0	3	4	3	0	4	21.34	17.73	24.78	2.04
2-102-51b	250-60	1	0	0	2	3	2	0	0	7.31	11.54	25.26	19.84	4.14
2-103-51b	250-60	1	1	0	0	3	4	2	0	4.9	10.32	21.64	22.64	3.46
2-104-51b	250-60	1	1	0	1	0	4	3	0	5.5	26.66	17.88	29.65	3.32
2-105-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	1.90
2-106-51b	250-60	1	0	0	0	3	2	6	0	0	0	26.47	23.31	2.72
2-107-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	4.62
2-108-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	3.46
2-109-51b	250-60	1	1	0	2	6	2	2	0	5.5	9.02	29.83	15.72	3.10
2-110-51b	250-60	1	1	3	0	2	4	3	0	13.89	30.9	42.34	30.97	9.50
2-111-51b	250-60	1	1	0	0	0	4	2	0	4.88	19.07	21.89	20.48	2.62
2-112-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	4.04
2-113-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	4.74
2-114-51b	250-60	1	1	3	2	0	4	3	0	8.92	15.81	43.91	17.48	6.52
2-115-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.96
2-116-51b	250-60	1	0	0	0	5	2	3	0	5.08	9.98	22.73	33.87	4.94
2-117-51b	250-60	1	0	0	0	4	2	2	0	2.81	7.08	22.1	27.51	2.92
2-118-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.90
2-119-51b	250-60	1	1	0	0	3	4	2	0	2.92	13.86	22.37	29.09	3.00
2-120-51b	250-60	1	0	0	0	2	2	3	0	6.02	25.02	16.34	25.33	3.74
2-121-51b	250-60	1	1	0	0	4	4	2	0	1.2	8.6	28.67	18.88	1.88
2-122-51b	250-60	3	0	0	0	0	0	0	0	0	0	0	0	3.60
2-123-51b	250-60	1	1	0	0	4	4	2	0	6.84	22.21	17.68	25.85	3.82
2-124-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	2.54
2-125-51b	250-60	1	1	0	1	1	4	2	0	1.94	13.88	25.7	21.1	3.20

2-126-51b	250-60	1	1	0	0	3	2	2	0	5.32	8.72	29.61	16.52	2.92
1-127-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	4.58
2-128-51b	250-60	1	0	0	2	0	2	2	0	6.14	11.56	29	23.46	6.10
2-129-51b	250-60	1	1	0	0	4	4	2	0	3	15.71	25.83	20.41	4.42
2-130-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	4.80
2-131-51b	250-60	1	1	0	0	6	2	2	0	3.11	7.45	23.15	29.41	5.60
2-132-51b	250-60	1	0	0	0	0	2	2	0	4.81	23.36	16.58	34.37	3.82
2-133-51b	250-60	1	0	0	0	2	2	6	0	1.08	9.71	32.09	24.81	5.64
2-134-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	4.74
2-135-51b	250-60	1	1	0	0	3	4	0	0	2.81	16.32	23.41	30.83	3.60
2-136-51b	250-60	1	1	0	2	6	4	1	0	2.8	14.1	22.18	30.97	5.42
2-137-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	3.14
2-138-51b	250-60	1	1	0	0	5	4	2	0	4.38	20.16	21.12	32.17	3.94
2-139-51b	250-60	1	1	0	0	5	2	2	0	4.29	10.91	19.44	40.91	5.98
2-140-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	6.38
2-141-51b	250-60	1	1	3	0	5	4	2	0	3.67	19.91	37.16	22.86	6.30
2-142-51b	250-60	1	1	3	0	6	2	3	0	10.53	28.23	31.75	29.88	8.92
2-143-51b	250-60	1	0	0	0	2	2	2	0	7.89	12.6	44.74	19.93	7.68
2-144-51b	250-60	1	1	3	0	5	2	2	0	3.7	11.39	30.71	28.23	5.60
2-145-51b	250-60	1	1	0	0	4	2	2	0	2.41	25.61	22.24	31.2	2.70
2-146-51b	250-60	1	1	3	0	4	2	2	0	8.9	18.05	32.5	26.24	7.44
2-147-51b	250-60	1	0	3	2	1	4	2	0	3.79	7.53	36.92	28.48	7.92
2-148-51b	250-60	1	1	0	0	0	2	3	0	6.07	21.22	19.8	32.02	4.58
2-149-51b	250-60	1	1	0	0	0	4	3	0	4.47	27.22	19.76	35.69	4.46
2-150-51b	250-60	1	1	3	0	2	2	3	0	4.22	18.84	21.31	37.78	5.66
2-151-51b	250-60	1	1	2	0	4	4	2	0	7.5	24.06	64.87	81.13	61.10
2-152-51b	250-60	1	1	3	0	3	4	2	0	5.75	17.66	27.34	26.79	5.20
2-153-51b	250-60	1	1	3	0	6	2	2	0	3.36	19.68	25.32	44.34	7.12
2-154-51b	250-60	1	0	3	1	1	2	2	0	3.86	20.7	31.24	42.3	13.08
2-155-51b	250-60	1	1	3	2	4	4	6	0	7.33	12.92	29.06	36.78	9.80
2-156-51b	250-60	1	1	3	0	4	4	2	0	8.28	29.44	42.22	37.33	10.98
2-157-51b	250-60	1	1	3	0	5	4	3	0	8.46	33.46	26.21	44.39	12.94
2-158-51b	250-60	1	1	3	0	3	4	3	0	8.66	28.19	34.58	49.03	15.60

2-159-51b	250-60	1	1	3	0	4	4	3	0	10.12	22.05	39.94	37.33	19.00
2-160-51b	250-60	2	0	0	0	0	0	0	0	0	0	0	0	9.82
2-161-51b	250-60	1	1	0	2	4	2	2	0	3.8	15.62	33.23	36.6	7.52
2-162-51b	250-60	1	1	3	2	4	4	1	0	6.22	20.72	45.12	31.45	11.84
2-163-51b	250-60	1	1	3	0	4	4	2	0	5.89	27.34	26.19	47.33	7.08
2-164-51b	250-60	1	1	3	2	6	4	2	0	8.72	28.57	58.18	35.84	24.40
2-165-51b	250-60	1	0	0	0	4	4	6	0	0	0	33.26	31.6	10.06
2-166-51b	250-60	1	1	3	0	4	4	3	0	6.37	21.02	45.87	28.28	10.38
2-167-51b	250-60	1	1	3	0	0	4	3	0	9.52	26.24	28.97	42.48	12.46
2-168-51b	250-60	1	0	0	0	5	2	2	0	4.08	16.92	24.76	34.55	5.86
2-169-51b	250-60	1	1	3	0	2	2	3	0	11.35	31.66	33.13	35.44	12.00
2-170-51b	250-60	1	0	3	0	5	2	3	0	2.86	9.18	52.18	29.82	10.80
2-171-51b	250-60	1	1	3	0	6	4	0	0	17.27	21.03	19.44	62.84	17.74
2-172-51b	250-60	1	1	2	0	4	4	2	0	15.75	33.19	46.1	51.17	35.02
2-173-51b	250-60	1	1	3	1	2	4	2	0	16.24	52.7	52.73	46.15	37.98
2-174-51b	250-60	1	1	3	0	4	4	2	0	8.1	32.96	64.1	51.79	34.14
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APPENDIX B

Artifact	Mg	Mn	Al	Si	K	Ca	Ti	**V**
1-003-03	29811.233	134495.13	134495.13	234714.258	12019.848	52723.419	24371.27	0.068000
1-004-03	26204.695	143207.408	143207.408	240351.102	13314.804	45933.769	20819.211	0.063000
1-8-4b	47114.172	118616.13	118616.13	218397.324	6856.626	103417.09	16473.835	0.046000
1-25-4b	28852.304	130329.539	130329.539	233629.89	12866.55	53002.152	25357.556	0.059000
1-28-4b	34666.188	144948.805	144948.805	234363.708	9952.899	46591.293	20233.157	0.057000
1-52-4b	31439.603	138628.963	138628.963	235307.856	10874.31	49450.093	21869.82	0.056000
1-25-4b	29165.916	122104.217	122104.217	232765.2	13024.269	58319.52	28616.588	0.063000
1-2-4b	32748.33	139264.123	139264.123	229727.1	10749.795	54803.196	24692.885	0.068000
1-31-4b	28158.739	136178.304	136178.304	237275.61	10816.203	49378.623	24235.477	0.066000
1-21-4b	33104.159	143863.74	143863.74	235564.926	9662.364	47284.552	20640.536	0.062000
1-15-5b	30414.333	130583.603	130583.603	232863.354	12044.751	54167.113	24442.74	0.058000
1-16-5b	27857.189	122755.256	122755.256	237986.058	12542.811	55089.076	26072.256	0.060000
1-17-5b	28894.521	133664.129	133664.129	237799.098	11388.972	50850.905	23120.545	0.057000
1-18-5b	28653.281	147177.158	147177.158	239579.892	12825.045	43982.638	16066.456	0.043000
1-29-5b	31071.712	141450.132	141450.132	233957.07	10459.26	49900.354	21641.116	0.062000
1-11-5b	30975.216	131991.541	131991.541	234130.008	10998.825	54981.871	23992.479	0.067000
1-19-5b	31487.851	142847.484	142847.484	231049.842	10625.28	50364.909	22834.665	0.066000
1-20-5b	27971.778	135892.482	135892.482	234433.818	14501.847	51115.344	23770.922	0.061000
1-24-5b	30408.302	121421.42	121421.42	233685.978	11538.39	59077.102	27494.509	0.063000
1-92-6b	35884.45	113757.156	113757.156	225324.192	13397.814	62729.219	28938.203	0.072000
1-131-6b	32452.811	153819.873	153819.873	233330.754	11928.537	45033.247	19561.339	0.066000
1-148-6b	32030.641	145536.328	145536.328	232732.482	10807.902	47641.902	22284.346	0.069000
1-150-6b	33236.841	145012.321	145012.321	234751.65	10592.076	47305.993	20897.828	0.068000
1-48-6b	32084.92	143159.771	143159.771	231746.268	11106.738	48978.391	22720.313	0.068000
1-136-6b	30106.752	137300.42	137300.42	237116.694	10434.357	49757.414	22334.375	0.068000
1-10-6b	30100.721	136538.228	136538.228	235097.526	11579.895	51501.282	23520.777	0.068000
1-18-6b	30390.209	135728.399	135728.399	236509.074	11056.932	50507.849	22691.725	0.065000
1-143-6b	32844.826	142037.655	142037.655	233835.546	9529.548	52437.539	21012.18	0.068000
1-19-9b	35359.753	113143.168	113143.168	218920.812	16784.622	75765.347	27773.242	0.075000

1-88-9b	30770.162	132473.204	132473.204	234775.02	10027.608	54324.347	24235.477	0.070000
1-83-9b	32971.477	141974.139	141974.139	232433.346	12376.791	56811.503	18196.262	0.056000
1-90-9b	34087.212	149686.04	149686.04	234957.306	11397.273	48270.838	16366.63	0.053000
1-85-9b	33345.399	154836.129	154836.129	236518.422	11471.982	48270.838	14908.642	0.051000
1-18-11b	36963.999	112010.466	112010.466	218364.606	13538.931	72327.64	32182.941	0.081000
1-9-11b	25372.417	137332.178	137332.178	237775.728	14244.516	44096.99	21105.091	0.059000
1-2-11b	29781.078	138401.364	138401.364	221552.274	18602.541	33640.929	29738.667	0.070000
1-4-11b	30420.364	141132.552	141132.552	236350.158	14609.76	48085.016	19854.366	0.051000
1-5-11b	30818.41	118907.245	118907.245	235803.3	12451.5	64301.559	25236.057	0.051000
1-8-11b	34075.15	118928.417	118928.417	224552.982	12459.801	53009.299	34541.451	0.074000
1-10-11b	36204.093	119960.552	119960.552	223407.852	11961.741	57947.876	32847.612	0.083000
1-34-13b	42409.992	112592.696	112592.696	216205.218	9546.15	98700.07	23427.866	0.072000
1-88-13b	35558.776	145795.685	145795.685	230834.838	8989.983	59055.661	18918.109	0.059000
1-84-13b	30378.147	149336.702	149336.702	239201.298	13181.988	48370.896	16752.568	0.054000
1-87-13b	30932.999	144440.677	144440.677	231750.942	9936.297	50057.588	21255.178	0.063000
1-13-20b	29871.543	136755.241	136755.241	237962.688	12476.403	50979.551	19404.105	0.057000
1-55-20b	33327.306	145816.857	145816.857	234882.522	10177.026	51601.34	20597.654	0.061000
1-57-20b	30094.69	138782.46	138782.46	235041.438	13024.269	56168.273	18403.525	0.049000
1-18-20b	38568.245	118933.71	118933.71	227460.21	9861.588	85113.623	21669.704	0.050000
1-40-20b	29226.226	144827.066	144827.066	240650.238	12335.286	47113.024	16552.452	0.048000
1-129-23	30076.597	140730.284	140730.284	229114.806	13240.095	54231.436	19882.954	0.052000
1-155-23	43990.114	122755.256	122755.256	214793.67	8624.739	100851.317	18825.198	0.051000
1-151-23	32302.036	133118.95	133118.95	226674.978	13821.165	60356.415	20583.36	0.053000
1-160-23	30932.999	121479.643	121479.643	236939.082	11148.243	60006.212	25200.322	0.061000
1-173-23	54266.938	97317.098	97317.098	194349.594	6234.051	171299.296	13743.681	0.026000
1-73-24b	36909.72	141825.935	141825.935	227343.36	9131.1	64044.267	19504.163	0.059000
1-151-24	37036.371	131081.145	131081.145	227796.738	13198.59	74021.479	18389.231	0.052000
1-82-24b	49249.146	116636.548	116636.548	214195.398	6200.847	128195.739	11921.196	0.036000
1-79-24b	45757.197	119807.055	119807.055	212442.648	8118.378	110313.945	18710.846	0.045000
1-65-24b	51896.755	99180.234	99180.234	207151.68	7678.425	138516.007	18789.463	0.038000
1-9-25b	49870.339	120775.674	120775.674	205959.81	5229.63	132319.558	13700.799	0.038000
1-21-25b	58319.77	80670.613	80670.613	193933.608	13231.794	181526.653	13872.327	0.023000
1-4-25b	34696.343	151014.583	151014.583	221075.526	9927.996	58090.816	19890.101	0.058000

1-18-25b	36957.968	155555.977	155555.977	229881.342	8134.98	50636.495	16874.067	0.055000
1-27-25b	36300.589	131901.56	131901.56	228105.222	9214.11	70833.917	20576.213	0.056000
1-5-26b	38115.92	136792.292	136792.292	224702.55	9363.528	71562.911	19068.196	0.056000
1-6-26b	43917.742	99931.84	99931.84	216064.998	10060.812	136772.139	15944.957	0.031000
1-3-26b	31891.928	130123.112	130123.112	232129.536	11422.176	60971.057	23435.013	0.058000
1-7-26b	64224.119	70534.518	70534.518	186791.736	5287.737	200823.553	16602.481	0.020000
1-8-26b	55648.037	84656.242	84656.242	185478.342	3627.537	212901.983	11413.759	0.026000
1-236-27	38942.167	150850.5	150850.5	227301.294	8417.214	59949.036	16645.363	0.059000
1-204-27	55786.75	95019.936	95019.936	200734.278	5545.068	160971.881	15516.137	0.033000
1-249-27	38930.105	134780.952	134780.952	225740.178	8334.204	75658.142	18517.877	0.057000
1-244-27	54876.069	107839.582	107839.582	205384.908	7512.405	143640.406	12114.165	0.033000
1-189-27	34455.103	132028.592	132028.592	230517.006	10492.464	65730.959	22284.346	0.059000
1-68-28b	39322.12	123088.715	123088.715	222758.166	10417.755	84513.275	21555.352	0.052000
1-3-28b	40823.839	130737.1	130737.1	221477.49	10359.648	93261.203	15687.665	0.045000
1-53-28b	44882.702	115233.903	115233.903	213877.566	8201.388	111786.227	19189.695	0.047000
1-2-28b	34376.7	141031.985	141031.985	234742.302	12086.256	61314.113	15937.81	0.047000
1-22-29b	32917.198	129350.334	129350.334	233657.934	12999.366	70505.155	18582.2	0.051000
1-17-29b	43200.053	110946.573	110946.573	222627.294	9371.829	97792.401	21047.915	0.049000
1-11-29b	40202.646	132245.605	132245.605	222613.272	8284.398	80789.688	19361.223	0.059000
1-15-29b	58138.84	84635.07	84635.07	187357.29	5146.62	194348.371	15265.992	0.027000
1-2-29b	43628.254	99762.464	99762.464	220869.87	12169.266	116660.481	19118.225	0.039000
1-190-30	48670.17	120738.623	120738.623	206375.796	6624.198	124207.713	15587.607	0.044000
1-204-30	55847.06	94178.349	94178.349	199341.426	9529.548	162058.225	13657.917	0.031000
1-200-30	43785.06	128630.486	128630.486	219051.684	8193.087	95262.363	16874.067	0.050000
1-167-30	44195.168	126989.656	126989.656	219430.278	10359.648	98721.511	14065.296	0.042000
1-195-30	49291.363	114307.628	114307.628	203702.268	7487.502	130375.574	18017.587	0.044000
1-114-31	42789.945	92013.512	92013.512	204950.226	10691.688	127030.778	26215.196	0.059000
1-42-31b	45926.065	118589.665	118589.665	214237.464	7072.452	112751.072	17367.21	0.045000
1-12-31b	40685.126	130853.546	130853.546	230619.834	12061.353	91774.627	10113.005	0.032000
1-8-31b	39297.996	123575.671	123575.671	225146.58	9247.314	85006.418	20647.683	0.050000
1-6-31b	42946.751	115736.738	115736.738	220304.316	9280.518	96348.707	20676.271	0.049000
1-37-32b	47277.009	101530.326	101530.326	215532.162	9579.354	113787.387	21641.116	0.043000
1-16-32b	47325.257	100794.599	100794.599	209273.676	10069.113	140338.492	16366.63	0.034000

1-23-32b	47331.288	109771.527	109771.527	212321.124	8765.856	114452.058	19904.395	0.044000
1-8-32b	42910.565	117499.307	117499.307	219748.11	9753.675	95269.51	20469.008	0.049000
1-19-32b	37428.386	140470.927	140470.927	230414.178	11438.778	69068.608	15151.64	0.048000
1-5-33b	43917.742	91378.352	91378.352	205099.794	10334.745	131669.181	25386.144	0.054000
1-15-33b	44406.253	103626.354	103626.354	220897.914	9811.782	101230.108	22134.259	0.680000
1-7-33b	50177.92	92389.315	92389.315	214503.882	5271.135	149465.211	15316.021	0.047000
1-9-33b	46438.7	115853.184	115853.184	236812.884	8707.749	75343.674	19318.341	0.067000
1-13-33b	46577.413	104272.1	104272.1	211470.456	8309.301	122049.319	19975.865	0.055000
1-29-98b	38351.129	121908.376	121908.376	216050.976	12866.55	81068.421	25657.73	0.056000
1-3-98b	41300.288	129228.595	129228.595	214475.838	11721.012	91002.751	18274.879	0.047000
1-15-98b	55503.293	100138.267	100138.267	189507.33	5362.446	169398.194	15566.166	0.003000
1-30-98b	36252.341	147187.744	147187.744	223150.782	9927.996	62407.604	19961.571	0.057000
1-35-98b	41221.885	129466.78	129466.78	212423.952	8525.127	92239.182	20283.186	0.050000
2-2-31b	49357.704	101615.014	101615.014	193452.186	10857.708	190303.169	7632.996	0.018000
2-8-44b	31548.161	159176.389	159176.389	236537.118	10077.414	38493.742	16566.746	0.060000
2-9-44b	28773.901	151633.864	151633.864	239650.002	10683.387	45376.303	15751.988	0.054000
2-18-48b	30703.821	145022.907	145022.907	241552.32	10567.173	46369.736	16230.837	0.059000
2-1-48a	32808.64	151649.743	151649.743	238804.008	10500.765	46612.734	19261.165	0.075000
2-13-48b	39696.042	114699.31	114699.31	231521.916	15390.054	58583.959	27058.542	0.088000
2-88-51	35830.171	113836.551	113836.551	218056.122	13563.834	68968.55	31017.98	0.085000
2-76-51	36204.093	108326.538	108326.538	207600.384	15190.83	86514.435	35156.093	0.074000
2-169-51	30884.751	153248.229	153248.229	228343.596	11173.146	50450.673	18410.672	0.054000
2-162-51	41873.233	145795.685	145795.685	212180.904	6582.693	81675.916	17631.649	0.055000
2-164-51	37723.905	161372.984	161372.984	220916.61	10699.989	55553.631	16573.893	0.056000
2-50-51	36547.86	122914.046	122914.046	216546.42	13298.202	67417.651	25943.61	0.072000
2-005-52	24847.72	131022.922	131022.922	246226.32	14817.285	47470.374	20175.981	0.057000
2-004-52	27248.058	140058.073	140058.073	241477.536	12750.336	45483.508	18460.701	0.054000
2-002-53	27447.081	145890.959	145890.959	238528.242	13348.008	42017.213	20912.122	0.063000
2-006-53	35872.388	156847.469	156847.469	233484.996	9106.197	36378.23	19661.397	0.073000
2-014-53	28261.266	136845.222	136845.222	237149.412	13646.844	48320.867	22355.816	0.065000
2-008-53	30848.565	150834.621	150834.621	228077.178	11314.263	41395.424	27187.188	0.082000
2-011-53	26789.702	137554.484	137554.484	242052.438	14568.255	45705.065	19661.397	0.060000
2-001-54b	26427.842	179829.675	179829.675	201566.25	8284.398	31932.796	33290.726	0.082000

2-33-55	26837.95	140063.366	140063.366	230783.424	13372.911	50329.174	27365.863	0.069000
2-002-55	27067.128	143742.001	143742.001	239752.83	12102.858	45076.129	19246.871	0.060000
2-001-55	31457.696	149130.275	149130.275	237004.518	12351.888	40988.045	18989.579	0.066000
2-001-56	25595.564	137951.459	137951.459	241949.61	22196.874	41402.571	18918.109	0.056000
2-002-56	28785.963	140751.456	140751.456	232423.998	13970.583	47398.904	22563.079	0.063000
2-005-56	28375.855	119780.59	119780.59	222141.198	21067.938	34348.482	32311.587	0.090000
2-004-56	25631.75	143027.446	143027.446	249834.648	18909.678	37078.636	13679.358	0.044000
2-005-57	24335.085	132822.542	132822.542	239911.746	14294.322	45090.423	23799.51	0.067000
2-006-58	28767.87	143022.153	143022.153	231727.572	13198.59	46955.79	23663.717	0.070000
2-001-58	29943.915	148653.905	148653.905	245810.334	12484.704	40480.608	14065.296	0.050000
2-006-58	28954.831	140105.71	140105.71	228497.838	11978.343	48513.836	27165.747	0.070000
2-006-68d	27428.988	136638.795	136638.795	240851.22	13738.155	46162.473	20926.416	0.063000
2-22-68d	24220.496	122548.829	122548.829	248610.06	14476.944	51594.193	22598.814	0.063000
2-1-68a	38031.486	155667.13	155667.13	254957.352	17158.167	23685.158	7797.377	0.031000
2-17-68d	27338.523	134383.977	134383.977	232036.056	11870.43	50765.141	27122.865	0.070000
2-16-68d	25438.758	131991.541	131991.541	241080.246	12924.657	49543.004	21841.232	0.060000
2-1-70 p	25885.052	138978.301	138978.301	240865.242	13306.503	46133.885	21190.855	0.062000
2-004-71	34473.196	151199.838	151199.838	235864.062	11438.778	44404.311	17967.558	0.060000
2-306-86	40449.917	122723.498	122723.498	232938.138	10683.387	62343.281	23006.193	0.078000
2-460-86	33821.848	143604.383	143604.383	227726.628	9894.792	60077.682	21812.644	0.066000
2-462-86	27441.05	136077.737	136077.737	239944.464	13920.777	50886.64	21333.795	0.062000
2-332-86	32163.323	144361.282	144361.282	234368.382	10351.347	53931.262	20254.598	0.063000
2-450-86	35154.699	132774.905	132774.905	229016.652	11347.467	66288.425	21898.408	0.061000
2-001-91	39774.445	104160.947	104160.947	226904.004	9081.294	61235.496	43346.555	0.088000
2-1-45to	24787.41	121320.853	121320.853	247418.19	15199.131	51451.253	23749.481	0.067000
1-76-25b	45413.43	117541.651	117541.651	213657.888	7661.823	115788.547	17781.736	0.047000
1-19-5b	30800.317	139475.843	139475.843	234013.158	11513.487	50629.348	22884.694	0.066000
1-145-5b	30884.751	139613.461	139613.461	233943.048	11339.166	50765.141	22834.665	0.067000
1-9-5b t	31065.681	139475.843	139475.843	233774.784	11372.37	51101.05	22734.607	0.071000
1-122-6b	30908.875	139639.926	139639.926	233760.762	11355.768	50800.876	22906.135	0.069000
1-18-6b	30866.658	139661.098	139661.098	233835.546	11671.206	50779.435	22834.665	0.069000
1-44-6b	30945.061	139576.41	139576.41	233830.872	11397.273	50972.404	22763.195	0.069000
1-106-4b	30939.03	139608.168	139608.168	233915.004	11471.982	50693.671	22798.93	0.065000

1-105-4b	30890.782	139698.149	139698.149	233863.59	11422.176	50543.584	22784.636	0.067000
1-18-4b	30975.216	139729.907	139729.907	233662.608	11463.681	50722.259	22791.783	0.067000
1-14-8b	30951.092	139724.614	139724.614	233667.282	11638.002	50750.847	22784.636	0.065000
1-33-8b	30945.061	139586.996	139586.996	233732.718	11588.196	50800.876	22791.783	0.067000
1-6-8b	30963.154	139909.869	139909.869	233461.626	11488.584	50858.052	22827.518	0.064000
1-22-8b	30878.72	139407.034	139407.034	233900.982	11646.303	50686.524	22841.812	0.067000
1-118-8b	31005.371	139692.856	139692.856	233629.89	11438.778	50822.317	22841.812	0.066000
1-19-8b	30981.247	139497.015	139497.015	233774.784	11422.176	50886.64	22884.694	0.067000
1-63-8b	30914.906	139560.531	139560.531	233742.066	11372.37	50886.64	22827.518	0.068000
1-58-8b	30951.092	139608.168	139608.168	233737.392	11397.273	50872.346	22863.253	0.068000
1-5-8b c	30957.123	138962.422	138962.422	233826.198	11455.38	50815.17	22927.576	0.064000
1-82-8b	30884.751	139618.754	139618.754	233924.352	11214.651	50650.789	22906.135	0.064000
1-81-8b	30866.658	139597.582	139597.582	233849.568	11397.273	50729.406	22770.342	0.065000
2-1-68c	35986.977	113386.646	113386.646	226413.234	15423.258	61885.873	28659.47	0.083000
1-001-36	42675.356	111491.752	111491.752	214499.208	7470.9	80696.777	37550.338	0.110000
2-003-55	26283.098	130419.52	130419.52	233204.556	14261.118	54645.962	29345.582	0.069000
1-001-35	32760.392	144022.53	144022.53	234186.096	9778.578	55632.248	16788.303	0.058000
2-1-68b	23973.225	123686.824	123686.824	251521.962	15489.666	51972.984	20997.886	0.057000

APPENDIX C

Artifact	Fe	Ni	Cu	Zn	Rb	Sr	Y	Zr	Nb
1-003-03	6.941000	0.002000	0.001000	0.013000	0.002000	0.040000	0.003000	0.016000	0.003000
1-004-03	5.996000	0.002000	0.002000	0.012000	0.004000	0.037000	0.003000	0.019000	0.003000
1-8-4b	5.239000	0.003000	0.002000	0.013000	0.002000	0.035000	0.003000	0.015000	0.003000
1-25-4b	7.817000	0.002000	0.001000	0.014000	0.003000	0.048000	0.003000	0.020000	0.003000
1-28-4b	5.949000	0.003000	0.001000	0.011000	0.002000	0.034000	0.003000	0.015000	0.002000
1-52-4b	6.722000	0.002000	0.001000	0.011000	0.002000	0.040000	0.003000	0.017000	0.002000
1-25-4b	8.269000	0.002000	0.001000	0.017000	0.003000	0.053000	0.004000	0.021000	0.003000
1-2-4b	6.443000	0.003000	0.001000	0.012000	0.002000	0.038000	0.003000	0.017000	0.003000
1-31-4b	6.972000	0.002000	0.001000	0.016000	0.002000	0.043000	0.003000	0.018000	0.003000
1-21-4b	6.032000	0.003000	0.001000	0.011000	0.002000	0.033000	0.003000	0.013000	0.002000
1-15-5b	7.738000	0.002000	0.001000	0.014000	0.003000	0.048000	0.003000	0.021000	0.003000
1-16-5b	8.112000	0.002000	0.001000	0.019000	0.003000	0.053000	0.004000	0.023000	0.003000
1-17-5b	7.100000	0.002000	0.001000	0.013000	0.003000	0.044000	0.003000	0.018000	0.003000
1-18-5b	5.978000	0.002000	0.001000	0.014000	0.003000	0.039000	0.004000	0.024000	0.003000
1-29-5b	6.550000	0.002000	0.001000	0.015000	0.002000	0.038000	0.003000	0.015000	0.003000
1-11-5b	7.195000	0.002000	0.001000	0.014000	0.002000	0.042000	0.003000	0.017000	0.003000
1-19-5b	6.590000	0.002000	0.001000	0.012000	0.002000	0.038000	0.003000	0.015000	0.003000
1-20-5b	7.031000	0.002000	0.001000	0.014000	0.002000	0.043000	0.004000	0.023000	0.004000
1-24-5b	8.236000	0.002000	0.001000	0.015000	0.002000	0.049000	0.003000	0.022000	0.003000
1-92-6b	9.560000	0.003000	0.001000	0.018000	0.003000	0.064000	0.005000	0.029000	0.004000
1-131-6b	4.941000	0.003000	0.001000	0.011000	0.002000	0.029000	0.003000	0.015000	0.003000
1-148-6b	6.082000	0.003000	0.002000	0.011000	0.002000	0.033000	0.003000	0.023000	0.003000
1-150-6b	6.082000	0.003000	0.002000	0.011000	0.002000	0.033000	0.003000	0.013000	0.002000
1-48-6b	6.439000	0.002000	0.001000	0.011000	0.002000	0.036000	0.003000	0.015000	0.016000
1-136-6b	6.739000	0.002000	0.001000	0.012000	0.002000	0.038000	0.003000	0.015000	0.003000
1-10-6b	6.774000	0.002000	0.001000	0.011000	0.003000	0.038000	0.003000	0.018000	0.003000
1-18-6b	6.890000	0.002000	0.001000	0.013000	0.002000	0.039000	0.003000	0.016000	0.003000
1-143-6b	6.030000	0.003000	0.001000	0.010000	0.002000	0.033000	0.003000	0.015000	0.003000
1-19-9b	8.988000	0.003000	0.002000	0.021000	0.004000	0.061000	0.005000	0.032000	0.005000
1-88-9b	7.179000	0.003000	0.001000	0.012000	0.002000	0.040000	0.003000	0.017000	0.003000

1-83-9b	5.731000	0.002000	0.001000	0.014000	0.003000	0.038000	0.004000	0.020000	0.003000
1-90-9b	5.164000	0.003000	0.001000	0.011000	0.002000	0.029000	0.003000	0.015000	0.003000
1-85-9b	4.186000	0.003000	0.001000	0.009000	0.002000	0.035000	0.003000	0.015000	0.003000
1-18-11b	9.393000	0.003000	0.001000	0.018000	0.003000	0.057000	0.004000	0.026000	0.004000
1-9-11b	7.882000	0.002000	0.001000	0.014000	0.003000	0.045000	0.004000	0.025000	0.003000
1-2-11b	10.146000	0.003000	0.001000	0.015000	0.003000	0.034000	0.004000	0.031000	0.003000
1-4-11b	6.194000	0.002000	0.001000	0.013000	0.003000	0.038000	0.004000	0.022000	0.003000
1-5-11b	7.665000	0.002000	0.001000	0.013000	0.003000	0.056000	0.004000	0.021000	0.003000
1-8-11b	9.762000	0.002000	0.002000	0.016000	0.003000	0.045000	0.003000	0.024000	0.003000
1-10-11b	9.064000	0.002000	0.001000	0.016000	0.003000	0.043000	0.003000	0.021000	0.003000
1-34-13b	6.904000	0.003000	0.002000	0.015000	0.003000	0.050000	0.004000	0.017000	0.004000
1-88-13b	4.962000	0.003000	0.001000	0.011000	0.002000	0.032000	0.003000	0.012000	0.002000
1-84-13b	4.648000	0.003000	0.001000	0.011000	0.003000	0.039000	0.003000	0.016000	0.003000
1-87-13b	6.582000	0.002000	0.001000	0.010000	0.002000	0.036000	0.003000	0.014000	0.002000
1-13-20b	6.671000	0.002000	0.001000	0.013000	0.002000	0.040000	0.004000	0.021000	0.003000
1-55-20b	5.124000	0.003000	0.001000	0.010000	0.002000	0.034000	0.003000	0.013000	0.003000
1-57-20b	6.220000	0.002000	0.001000	0.013000	0.002000	0.041000	0.004000	0.023000	0.003000
1-18-20b	6.108000	0.002000	0.001000	0.010000	0.002000	0.044000	0.003000	0.016000	0.003000
1-40-20b	5.662000	0.002000	0.001000	0.011000	0.003000	0.036000	0.003000	0.019000	0.003000
1-129-23	7.111000	0.002000	0.001000	0.015000	0.003000	0.042000	0.004000	0.023000	0.003000
1-155-23	5.550000	0.003000	0.001000	0.011000	0.002000	0.041000	0.003000	0.015000	0.003000
1-151-23	7.717000	0.002000	0.001000	0.016000	0.003000	0.047000	0.004000	0.025000	0.004000
1-160-23	7.689000	0.002000	0.001000	0.013000	0.002000	0.046000	0.004000	0.020000	0.003000
1-173-23	4.194000	0.003000	0.001000	0.010000	0.003000	0.043000	0.003000	0.017000	0.003000
1-73-24b	5.426000	0.003000	0.001000	0.011000	0.002000	0.039000	0.003000	0.014000	0.003000
1-151-24	5.575000	0.003000	0.001000	0.012000	0.003000	0.053000	0.004000	0.022000	0.004000
1-82-24b	3.440000	0.003000	0.001000	0.010000	0.002000	0.028000	0.003000	0.012000	0.002000
1-79-24b	5.086000	0.003000	0.001000	0.010000	0.002000	0.038000	0.003000	0.013000	0.003000
1-65-24b	5.194000	0.003000	0.001000	0.010000	0.002000	0.043000	0.003000	0.013000	0.003000
1-9-25b	3.612000	0.004000	0.001000	0.008000	0.002000	0.032000	0.002000	0.010000	0.002000
1-21-25b	4.465000	0.003000	0.001000	0.011000	0.002000	0.043000	0.003000	0.015000	0.003000
1-4-25b	6.061000	0.003000	0.001000	0.011000	0.003000	0.040000	0.003000	0.016000	0.003000
1-18-25b	4.662000	0.003000	0.002000	0.009000	0.002000	0.030000	0.003000	0.011000	0.003000

1-27-25b	6.112000	0.002000	0.001000	0.011000	0.002000	0.042000	0.003000	0.016000	0.003000
1-5-26b	5.725000	0.002000	0.001000	0.010000	0.002000	0.037000	0.003000	0.014000	0.003000
1-6-26b	4.794000	0.003000	0.001000	0.010000	0.002000	0.040000	0.003000	0.021000	0.003000
1-3-26b	7.013000	0.002000	0.001000	0.013000	0.002000	0.048000	0.003000	0.017000	0.003000
1-7-26b	4.808000	0.003000	0.001000	0.009000	0.002000	0.048000	0.003000	0.014000	0.003000
1-8-26b	3.121000	0.004000	0.001000	0.008000	0.002000	0.030000	0.002000	0.010000	0.002000
1-236-27	4.458000	0.003000	0.001000	0.009000	0.002000	0.030000	0.003000	0.011000	0.002000
1-204-27	4.311000	0.003000	0.001000	0.009000	0.002000	0.036000	0.003000	0.011000	0.002000
1-249-27	5.386000	0.003000	0.001000	0.009000	0.002000	0.035000	0.003000	0.012000	0.002000
1-244-27	3.694000	0.003000	0.001000	0.009000	0.002000	0.040000	0.003000	0.014000	0.003000
1-189-27	6.197000	0.002000	0.001000	0.012000	0.002000	0.043000	0.003000	0.015000	0.003000
1-68-28b	6.252000	0.002000	0.001000	0.012000	0.002000	0.047000	0.003000	0.017000	0.003000
1-3-28b	4.447000	0.003000	0.002000	0.010000	0.002000	0.038000	0.003000	0.019000	0.003000
1-53-28b	5.485000	0.003000	0.001000	0.010000	0.002000	0.042000	0.003000	0.015000	0.003000
1-2-28b	4.943000	0.003000	0.001000	0.010000	0.003000	0.043000	0.003000	0.018000	0.003000
1-22-29b	5.855000	0.002000	0.001000	0.012000	0.002000	0.038000	0.003000	0.020000	0.003000
1-17-29b	6.249000	0.002000	0.001000	0.013000	0.002000	0.044000	0.003000	0.015000	0.003000
1-11-29b	5.479000	0.003000	0.001000	0.010000	0.002000	0.037000	0.003000	0.012000	0.003000
1-15-29b	4.157000	0.003000	0.001000	0.009000	0.002000	0.042000	0.003000	0.012000	0.003000
1-2-29b	5.924000	0.002000	0.001000	0.013000	0.003000	0.049000	0.004000	0.022000	0.003000
1-190-30	4.399000	0.003000	0.001000	0.009000	0.002000	0.034000	0.003000	0.011000	0.002000
1-204-30	4.365000	0.003000	0.001000	0.011000	0.002000	0.038000	0.003000	0.017000	0.003000
1-200-30	4.684000	0.003000	0.001000	0.009000	0.002000	0.032000	0.003000	0.012000	0.002000
1-167-30	4.474000	0.003000	0.001000	0.010000	0.003000	0.040000	0.003000	0.016000	0.003000
1-195-30	4.762000	0.003000	0.001000	0.010000	0.002000	0.039000	0.003000	0.013000	0.003000
1-114-31	8.606000	0.003000	0.001000	0.016000	0.003000	0.072000	0.004000	0.023000	0.004000
1-42-31b	4.875000	0.003000	0.001000	0.009000	0.002000	0.037000	0.003000	0.013000	0.002000
1-12-31b	3.295000	0.003000	0.001000	0.010000	0.003000	0.033000	0.003000	0.021000	0.003000
1-8-31b	5.842000	0.002000	0.001000	0.011000	0.002000	0.041000	0.003000	0.015000	0.003000
1-6-31b	6.150000	0.003000	0.001000	0.011000	0.002000	0.044000	0.003000	0.016000	0.003000
1-37-32b	6.519000	0.002000	0.001000	0.012000	0.002000	0.050000	0.003000	0.017000	0.003000
1-16-32b	4.949000	0.002000	0.001000	0.011000	0.003000	0.042000	0.003000	0.021000	0.003000
1-23-32b	5.899000	0.003000	0.001000	0.011000	0.002000	0.045000	0.003000	0.016000	0.003000

1-8-32b	6.065000	0.003000	0.001000	0.012000	0.002000	0.043000	0.003000	0.016000	0.003000
1-19-32b	4.580000	0.003000	0.001000	0.010000	0.003000	0.040000	0.003000	0.016000	0.003000
1-5-33b	8.036000	0.003000	0.001000	0.017000	0.003000	0.076000	0.004000	0.022000	0.004000
1-15-33b	0.148000	7.048000	0.002000	0.013000	0.003000	0.050000	0.004000	0.019000	0.004000
1-7-33b	4.419000	0.004000	0.002000	0.010000	0.002000	0.038000	0.003000	0.013000	0.003000
1-9-33b	5.187000	0.004000	0.002000	0.013000	0.002000	0.038000	0.003000	0.014000	0.003000
1-13-33b	6.187000	0.005000	0.001000	0.012000	0.002000	0.045000	0.003000	0.016000	0.003000
1-29-98b	7.611000	0.002000	0.001000	0.016000	0.003000	0.058000	0.004000	0.021000	0.003000
1-3-98b	5.848000	0.003000	0.001000	0.015000	0.003000	0.046000	0.004000	0.023000	0.003000
1-15-98b	4.601000	0.004000	0.001000	0.010000	0.002000	0.044000	0.003000	0.013000	0.003000
1-30-98b	5.479000	0.003000	0.001000	0.011000	0.003000	0.038000	0.003000	0.014000	0.003000
1-35-98b	6.231000	0.003000	0.001000	0.012000	0.002000	0.046000	0.003000	0.016000	0.003000
2-2-31b	2.061000	0.004000	0.001000	0.011000	0.003000	0.039000	0.004000	0.030000	0.006000
2-8-44b	4.966000	0.003000	0.001000	0.011000	0.002000	0.027000	0.003000	0.013000	0.002000
2-9-44b	5.185000	0.002000	0.010000	0.013000	0.002000	0.034000	0.003000	0.015000	0.002000
2-18-48b	5.499000	0.002000	0.001000	0.015000	0.002000	0.034000	0.003000	0.015000	0.002000
2-1-48a	4.125000	0.005000	0.003000	0.008000	0.002000	0.027000	0.002000	0.011000	0.002000
2-13-48b	8.049000	0.003000	0.002000	0.019000	0.003000	0.045000	0.004000	0.022000	0.004000
2-88-51	9.902000	0.003000	0.001000	0.023000	0.003000	0.063000	0.005000	0.024000	0.004000
2-76-51	9.875000	0.002000	0.001000	0.031000	0.003000	0.069000	0.005000	0.026000	0.004000
2-169-51	5.819000	0.002000	0.001000	0.013000	0.002000	0.037000	0.003000	0.020000	0.003000
2-162-51	5.199000	0.003000	0.001000	0.011000	0.002000	0.036000	0.003000	0.013000	0.002000
2-164-51	4.379000	0.003000	0.001000	0.012000	0.003000	0.037000	0.003000	0.015000	0.003000
2-50-51	9.358000	0.003000	0.001000	0.019000	0.003000	0.062000	0.005000	0.026000	0.004000
2-005-52	6.936000	0.002000	0.001000	0.013000	0.003000	0.042000	0.004000	0.024000	0.003000
2-004-52	6.635000	0.002000	0.001000	0.013000	0.002000	0.038000	0.004000	0.021000	0.003000
2-002-53	6.217000	0.002000	0.001000	0.011000	0.002000	0.033000	0.003000	0.017000	0.003000
2-006-53	5.295000	0.003000	0.002000	0.011000	0.002000	0.025000	0.002000	0.011000	0.002000
2-014-53	6.936000	0.002000	0.001000	0.013000	0.002000	0.038000	0.004000	0.019000	0.003000
2-008-53	6.395000	0.003000	0.001000	0.010000	0.002000	0.029000	0.003000	0.012000	0.002000
2-011-53	6.637000	0.002000	0.001000	0.012000	0.002000	0.037000	0.004000	0.020000	0.003000
2-001-54b	8.108000	0.002000	0.001000	0.013000	0.002000	0.031000	0.003000	0.016000	0.002000
2-33-55	6.974000	0.002000	0.001000	0.012000	0.002000	0.041000	0.003000	0.018000	0.003000

2-002-55	6.362000	0.002000	0.001000	0.011000	0.002000	0.037000	0.003000	0.017000	0.003000
2-001-55	5.797000	0.003000	0.001000	0.012000	0.002000	0.029000	0.003000	0.015000	0.002000
2-001-56	6.548000	0.002000	0.001000	0.014000	0.003000	0.039000	0.004000	0.023000	0.004000
2-002-56	7.175000	0.002000	0.001000	0.013000	0.002000	0.039000	0.004000	0.020000	0.003000
2-005-56	12.853000	0.002000	0.001000	0.022000	0.003000	0.038000	0.004000	0.029000	0.003000
2-004-56	5.658000	0.002000	0.001000	0.012000	0.004000	0.042000	0.004000	0.023000	0.004000
2-005-57	7.904000	0.002000	0.001000	0.014000	0.002000	0.043000	0.004000	0.022000	0.003000
2-006-58	6.897000	0.002000	0.001000	0.014000	0.002000	0.038000	0.003000	0.015000	0.003000
2-001-58	5.007000	0.003000	0.001000	0.012000	0.002000	0.030000	0.003000	0.017000	0.003000
2-006-58	7.551000	0.002000	0.001000	0.013000	0.002000	0.036000	0.003000	0.018000	0.002000
2-006-68d	6.801000	0.002000	0.001000	0.013000	0.002000	0.037000	0.004000	0.020000	0.003000
2-22-68d	7.232000	0.002000	0.001000	0.014000	0.003000	0.045000	0.004000	0.022000	0.003000
2-1-68a	3.043000	0.003000	0.002000	0.015000	0.006000	0.032000	0.004000	0.037000	0.007000
2-17-68d	7.822000	0.002000	0.001000	0.014000	0.002000	0.045000	0.003000	0.018000	0.018000
2-16-68d	7.444000	0.002000	0.001000	0.014000	0.002000	0.043000	0.004000	0.021000	0.003000
2-1-70 p	6.635000	0.002000	0.001000	0.013000	0.003000	0.042000	0.003000	0.016000	0.003000
2-004-71	4.933000	0.003000	0.001000	0.011000	0.002000	0.027000	0.003000	0.014000	0.002000
2-306-86	6.736000	0.003000	0.002000	0.014000	0.003000	0.048000	0.004000	0.017000	0.003000
2-460-86	5.643000	0.002000	0.001000	0.013000	0.002000	0.039000	0.003000	0.014000	0.003000
2-462-86	6.340000	0.002000	0.001000	0.014000	0.003000	0.042000	0.004000	0.023000	0.004000
2-332-86	5.389000	0.002000	0.001000	0.011000	0.002000	0.037000	0.003000	0.013000	0.003000
2-450-86	6.130000	0.002000	0.001000	0.013000	0.003000	0.042000	0.003000	0.014000	0.003000
2-001-91	9.146000	0.016000	0.001000	0.014000	0.001000	0.031000	0.003000	0.016000	0.002000
2-1-45to	7.406000	0.002000	0.001000	0.019000	0.003000	0.048000	0.004000	0.022000	0.003000
1-76-25b	4.725000	0.003000	0.001000	0.011000	0.002000	0.041000	0.003000	0.014000	0.003000
1-19-5b	6.551000	0.002000	0.001000	0.012000	0.002000	0.039000	0.003000	0.015000	0.003000
1-145-5b	6.536000	0.002000	0.001000	0.012000	0.002000	0.038000	0.003000	0.015000	0.003000
1-9-5b t	6.526000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.003000
1-122-6b	6.547000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.003000
1-18-6b	6.517000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.002000
1-44-6b	6.530000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.003000
1-106-4b	6.537000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.003000
1-105-4b	6.568000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.003000

1-18-4b	6.557000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.003000
1-14-8b	6.542000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.002000
1-33-8b	6.550000	0.002000	0.001000	0.012000	0.002000	0.036000	0.003000	0.015000	0.003000
1-6-8b	6.544000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.003000
1-22-8b	6.558000	0.002000	0.001000	0.012000	0.002000	0.036000	0.003000	0.015000	0.003000
1-118-8b	6.549000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.003000
1-19-8b	6.548000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.002000
1-63-8b	6.565000	0.002000	0.001000	0.012000	0.002000	0.036000	0.003000	0.014000	0.003000
1-58-8b	6.548000	0.002000	0.001000	0.012000	0.002000	0.036000	0.003000	0.015000	0.002000
1-5-8b c	6.542000	0.002000	0.001000	0.012000	0.002000	0.036000	0.003000	0.014000	0.003000
1-82-8b	6.563000	0.002000	0.001000	0.012000	0.002000	0.036000	0.003000	0.015000	0.002000
1-81-8b	6.570000	0.002000	0.001000	0.012000	0.002000	0.037000	0.003000	0.015000	0.002000
2-1-68c	9.300000	0.003000	0.002000	0.018000	0.003000	0.056000	0.005000	0.022000	0.004000
1-001-36	8.194000	0.012000	0.004000	0.014000	0.002000	0.036000	0.003000	0.016000	0.003000
2-003-55	7.368000	0.002000	0.001000	0.014000	0.002000	0.048000	0.004000	0.020000	0.003000
1-001-35	5.707000	0.002000	0.001000	0.010000	0.002000	0.037000	0.003000	0.017000	0.004000
2-1-68b	6.498000	0.002000	0.001000	0.016000	0.003000	0.051000	0.005000	0.027000	0.004000

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